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ILLUSTRATIONS.

SWINLEY FOREST GOLF CLUB HOUSE, ASCOT: FRONT ELEVATION.
MR. STANLEY HAMP, A.R.I.B.A. (OF MESSRS. COLLCUTT & HAMP), ARCHITECT.
HOUSE IN WILD HATCH, HAMPSTEAD GARDEN SUBURB, N.W.
MR. T. M. WILSON, ARCHITECT.
15, STRATFORD PLACE, W. BY MR. CHARLES GASCOYNE.
GLEDHOW HALL, LEEDS: DOORWAY TO LIBRARY.
MR. S. D. KITSON, F.R.I.B.A., ARCHITECT.
THE BANK OF ADELAIDE, LEADENHALL-STREET, E.C.: BOARD-ROOM FIREPLACE.
MR. L. U. GRACE, F.R.I.B.A., ARCHITECT.

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A "THOROUGHLY UP-TO-DATE SOCIETY."

IT is not without regret that we return to a matter dealt with in our leading article of November 29, but the correspondence which it has occasioned makes it necessary to do so. We recognise that Mr. Tubbs, as a Fellow of the Institute, was perhaps placed in a somewhat difficult position in regard to his opening Presidential address before the Society of Architects. If he had confined his remarks to the affairs of his Society or to matters of general interest to architects we should not have found it necessary to make any comment upon them. But Mr. Tubbs went farther than that. He raised issues between the Royal Institute of British Architects and the Society of Architects, when, in fact, no issue exists, claiming for the latter Society advanced business methods and other qualities which inferentially the older body only possessed in some indifferent and negligent degree. Criticisms are often levelled at the Institute by those who know little of its past history and little or nothing of its present operations. The President of the Society of Architects, however, could scarcely be included in this category. He is probably aware that the Institute has served as an example for architectural societies of the kind of most other countries, and that the very Society which he represents has modelled itself, almost in every particular, upon the Institute's constitution and methods of procedure. Next to l'Académie Royal of France, which was disbanded by a decree of the Convention Nationale in 1793, the Royal Institute of British Architects holds the most venerable position in regard to architectural institutions. This is, however, only an incidental point; antiquity and a respectable tradition are not sufficient in themselves to guarantee that an institution is "moving with the times." But a week before Mr. Tubbs delivered his address the President of the senior body had, at the opening meeting at Conduit-street, plainly demonstrated that the vitality of the Institute was in no way impaired; its affairs were never in a more flourishing condition: never perhaps was a more effective and progressive control being exercised on behalf of architecture and architects. Mr. Blomfield's speech might have served as an example of "thoroughly up-to-date methods" as well as of good taste. It is not our wish, however, to be anything but impartial in any issue that may concern the Society of Architects. As we said in our previous article, we consider that it has a useful purpose to fulfil. It unites in common action a body of men who, with some few exceptions, for various reasons have not sought, or sought in vain, admission into the ranks of the Institute; it provides opportunity for the reading of papers, and it publishes a *Journal*. It is also in a position to promote schemes useful either for discussion or for carrying into effect. We need only mention in this connexion its propaganda on behalf of Registration and the attempt to establish the French system of ateliers in this country. We will return presently to the latter scheme. If, therefore, we find it necessary, in referring to the correspondence which we have received, to make any strictures upon the Society's "thoroughly up-to-date" methods, the above reservations should also be kept in mind

We have received letters bearing on the points which we raised in our leading article from both the President and Secretary of the Society of Architects, from Mr. Seth-Smith, Mr. Todd, and Mr. Herbert Shepherd. Mr. Tubbs complained that we had misrepresented him in stating that certain of his remarks bore the construction that he was offering a bait to the new class of Licentiates of the Institute, so that they might transfer their membership to the Society of Architects. Our answer to that was to quote him in full. His actual words were, according to our report, the accuracy of which has not been questioned:—"The Royal Institute of British Architects have succeeded in getting some 2,000 architects to become Licentiates, but numbers of these have joined under the misapprehension that it would be quite easy, in fact, more or less a matter of form, for them to become Fellows of the Institute. As a matter of fact, only ten have been able to satisfy the examiners, and qualify as candidates for election as Fellows at the first examination which has been held. *This examination proved not to be a mere matter of form, but a very real test extending over six days.* How Licentiates feel about this I do not know, but possibly some or even many of them would rather be corporate members of a progressive and thoroughly up-to-date Society, making for reform all the time, than merely non-corporate members of the senior body. I for one shall watch future developments in this respect with great interest." Notwithstanding Mr. Tubbs's protest, we regret that we cannot change our opinion of the meaning of this passage from his speech. If it is not a bait, we do not know what a bait is. Mr. Tubbs passed over our criticism of his Society's promoting a Registration Bill before the influential Registration Committee appointed at the Institute has made its report. The Society may call this "making for reform all the time," but probably hustling would be the better word.

Mr. Tubbs further accused us of a certain inconsistency in not supporting the French atelier scheme. Mr. Seth-Smith, a former President of the Society of Architects, stated in his letter which appeared in our issue of December 20 that, as a member of the Institute, he had found it necessary to resign his membership of the junior Society when it proceeded to embark on schemes of education and examination. The same writer also expressed no sympathy with the atelier scheme. Mr. H. Guicharde Todd replied with some asperity to Mr. Seth-Smith, referring to his "extraordinary and futile views." But are Mr. Todd's own views less extraordinary? The general tenor of his remarks is to place the two societies on an equal footing. "The Society," he tells us, "as a professional body stands in the same relation to its members as the Royal Institute of British Architects does to its Fellows, Associates, and Licentiates." If Mr. Todd has read the report of the proceedings of the meeting at Conduit-street, which was held on January 8 of last year, and at which the amalgamation proposals were considered and rejected, he would not probably have written that the "proposals have put it on record that the Society was willing to give up its independence and individuality in the interests of the policy it has consistently upheld, the terms of absorption being such that the high representative and professional standing of the Society were fully acknowledged and also put on record"—because the terms of absorption were rejected by an overwhelming majority of members of the Institute. Mr. Todd had, too, no doubt also forgotten the case of the Society of Architects *v.* Kendrick, heard in the Chancery Division on April 22, 1910—a case in which the Society of Architects sought to restrain a builder and architect who was not a member of the Society from using the "mystic letters M.S.A." (to quote Mr. Justice Joyce) after his name. Although the defendant did not appear, the Society lost the case, and the comments of the judge, which we do not wish to quote, scarcely suggest that in the Courts of Law, at any rate, the two societies would stand "in the same relation" to their members. We do not think that arguments of this character are calculated to promote the best interests of the Society in whose behalf they are used. The letter from Mr. Herbert Shepherd, which appears in our present issue, reminds us that the examinations at the Institute go back earlier than we supposed, and we thank him for the correction. His statistical statement with regard to the membership of the Institute is illuminating and interesting. The letter from "Subscriber" in this issue will no doubt be answered by the Society.

The question of Registration has for the moment fallen a little into the background, while the scheme for establishing ateliers on the French system would seem to be upon the point of materialising. The names of the Committee have been published, but we do not find on the list the name of any member of the Board of Architectural Education. We have little to add to our previous remarks in regard to the promotion of this scheme, and, after giving the matter further consideration, we cannot say that we welcome it. Order was gradually being discovered in our educational system. If the French ateliers become popular, as they might, they will not, in our view, serve any useful purpose in the higher interests of British architecture. An atelier is not a cabaret, any more than Soho (in which neighbourhood, we hear, the first atelier is to be started) has the smallest resemblance to the Quartier Latin. The charming Bohemianism of the student-life of the Boul' Mich' is not altogether a matter of cheap restaurants and anarchists; it must not be overlooked that the École des Beaux-Arts and the Sorbonne are just round the corners. Atmosphere is all very well in its way, but let us get the right atmosphere, not merely a theatrical representation of it. We are also to have, again with the idea of atmosphere in view, a graduate of the Beaux-Arts to instruct the students. The independent ateliers in Paris are run by distinguished and experienced architects who have long since left the graduate phase behind them. They are by no means merely instructors; they do not command the respect of their students through their teaching abilities alone, but also on account of their architectural achievements and faculty of criticism, which carries weight and conviction on account of their attainments in active practice. The proposed experiment cannot in any way be logically related to the Beaux-Arts system. What are the facts? A student enters the École des Beaux-Arts, through a system of competition, at the age of twenty or so. His companions in study are not only young architects, but also young painters and sculptors, and a great deal of importance in the French view is attached to this sort of camaraderie between young artists in the making with regard to this system of training. In his third year or so the student, after having undergone various studies in mechanics and construction, enters an atelier which he is at liberty to choose for himself, and his choice is often decided by his appreciation of the works in architecture of the *maître*. There are also official ateliers attached to the Beaux-Arts which are useful and less expensive to the student of slender means. His studies, therefore, of architectural composition and of schemes in the air after the "grand manner" are only undertaken after he has undergone a certain course of training and arrived at a certain stage of development. There are, of course, exceptions, but these do not form part of the Beaux-Arts system, which involves some five or six years' diligent work, without taking into consideration the time which the student has devoted to preparatory exercises before he has the smallest chance of securing entrance to the School. It may be gathered, then, the kind of relationship that an atelier dumped down in London will bear to the French atelier. But that is only one aspect of the question; there is still a more comprehensive view. Mr. Lovell, in the letter which we published last week, in which he expounds the programme of "the Beaux-Arts Committee for Architectural Training in Great Britain," states that "it is generally admitted that the first and greatest school of architecture in the world is that of the École des Beaux-Arts." We have often expressed our appreciation of the Beaux-Arts system of training, as a whole; we consider it most excellent; but we cannot say that our opinion is generally shared by architects abroad, or that "it is generally admitted as being the best system," except in France and America. We have had the privilege of discussing the subject with many eminent foreign architects, who are entirely opposed to it. America, a country with no architectural tradition behind it, has assimilated the system *as a whole*, although we believe that the ateliers, if it possesses them, are only attached to the schools, occupying pretty much the same position as Professor Reilly's class of design at Liverpool University. The question remains, "Why, of all times, at the present moment should we go to France for our architectural instruction?" France has, to some extent, excelled in architecture because, in a certain large way, it has always been true to the instinct of its race. It probably borrowed less than any other country from the great architectural movement of the Italian Renaissance; its borrowing even then was more a process of adaptation than mere imitation or copyism. To-day the more recent architecture of Paris is in no way an improvement on our

own. The Beaux-Arts system has either ceased to operate beneficially or the modern spirit is discovering in architecture, as in other directions, its own wilful way. The establishment of ateliers under French control in England can scarcely, we fancy, improve upon our present methods, which are still at a stage of development and progress. We have emerged through the period of the battle of the styles. In our opinion, the hope of architecture as a living and vital art was never in modern times greater in this country than it is at present. Do not let us have another battle of the styles. We can learn a good deal from France by the simple and cheap process of crossing the channel in a boat. There is no barrier in the way of an earnest student who wishes to enter a French atelier; he has merely to take an afternoon's journey and live at the smallest cost which is possible for any student in Europe, acquire the necessary qualifications, and he will get the *real* thing. Have we not, besides, our own teachers? We have our own methods, which have produced and are producing excellent results, and which are becoming more systematised every day. Let us be content to go on with these for the present.

In a letter criticising the formation of the "Fine Arts Committee for London," which appeared in the *Times* last Monday, the correspondent, after enumerating the various teaching centres established in London and the provinces for architectural education, admirably sums up the position thus:—"One would almost think from the notices in the general Press that such a thing as architectural education did not exist, and for the first time in history students were to receive a proper training." For it appears that the Committee formed to promote the ateliers has, according to an earlier notice which appeared in the *Times*, blossomed into the "Fine Arts Committee for London"!

NOTES.

The Moor-lane Celluloid Fire. DR. WALDO, the City Coroner, recently in public presented the three City warehousemen, named Spiller, Bowd, and Williams, with the monetary reward voted by the City Corporation in recognition of the bravery they displayed at the Moor-lane celluloid fire in July last, when nine girls lost their lives. In making the presentation the Coroner again drew attention to the want of co-operation between the various inspecting authorities, which was one of the reasons why a structure, so totally unfitted for the handling and storing of celluloid as the Moor-lane premises undoubtedly were, was still permitted to be used for those purposes. We are entirely in sympathy with Dr. Waldo in his steady endeavours to secure that legislation as to celluloid stores and workshops which alone is likely to put an end to the terrible tragedies that only too frequently attend the industry in its present unregulated state. It will be remembered that we made a series of suggestions at the time of the last fire, and we trust that we may soon see such regulations enforced as will attain the desired end.

Official Architects in America. IN his address to the American Institute of Architects Mr. Walter Cook calls attention to the results which are likely to follow from the repeal of the Tarsney Act, which authorised the Government to place its public buildings in the hands of private architects. He speaks of the way in which architecture is turned out by the yard from "Government factories," and adds that nothing of the kind has ever happened in any civilised country. The logical sequence of the repeal is, he adds, the establishment of a specialised bureau for the manufacture of sculpture and decorative painting, followed by still another whose duty shall be to turn out all odes, lyrics, and sonnets which may be needed to celebrate the achievements of "our enlightened Republic." We are apt to think that the evils from which we suffer are greater than those of our neighbours, but we believe that architects of most countries suffer from seeing many of the professional prizes withdrawn from private practitioners and placed in the hands of a bureaucracy. In France this may matter less, as the system of officialism is more in keeping with the national character and temperament, and also because in France art is a national possession, as it is nowhere else; but both in England and America the instincts of our race make it more than doubtful if an art can be departmentalised with advantage to itself. The best men will always tend to seek freedom, and the spirit of emulation and hope must tend to die out if adequate rewards are withheld.

The Ditton Railway Accident. IN the Report of Lieut.-Colonel Yorke on the accident which occurred at Ditton Junction on September 17 attention was drawn to the method of lighting railway carriages. The Report states:—"So far as safety is concerned there can hardly exist in anyone's mind a doubt that electricity is the better, and I think the railway companies would be wise to recognise this fact and adopt electricity as the standard illuminant on all their main line trains before they are compelled to do so by the pressure of public opinion." Fortunately in this particular railway accident there was evidence to show that no one met their death by the flames which so rapidly spread in the wreckage, but this was due not to the foresight of the company, but to the severity of the accident by which the victims were killed outright. The railway companies are so careful in most respects as to the safety of their passengers, and perform their duties so well on the whole, that it seems remarkable that they should neglect to take steps to avoid what in case of accident may so seriously increase the loss of life and enhance the sufferings of the injured—an outbreak of fire. After the serious warning that has now been given to them we hope that they will no longer hesitate to adopt electric lighting, and we do not see why it should be limited to main line trains.

Mr. W. R. Mead. THE National Institute of Arts and Letters has presented its gold medal to Mr. W. R. Mead, the only survivor of the original firm of Messrs. McKim, Mead, & White. The gold medal is awarded to "any American of either sex, whether a member of the Institute or not, for distinguished services in the creation of original works in art or letters." Mr. Mead, if anything, has had the reputation of being the business member of the trio who have added such distinction to American architecture, but the exact amount of credit which may be due to the individual members of so great a firm is always difficult for outsiders to allocate, nor is the attempt to do so a gracious act. It would be safe to say that all of them are illustrious architects well worthy of the honours bestowed on them.

ST. PAUL'S CATHEDRAL AND THE TRAFFIC PROBLEM.

WHILE anxious to avoid interpreting Sir Francis Fox's report on the present condition of the structure of St. Paul's Cathedral in any sensational spirit of exaggerated alarm, we yet feel bound to recognise its undoubted gravity. It calls attention to recent movements of the fabric, resulting in a state of insecurity, the full extent of which does not appear to have been altogether realised by those more immediately concerned.

Our last "Review of Civic Design," written in ignorance of the facts disclosed by the report, deprecated the construction of the tunnel, and thought it advisable "to leave well alone." Unfortunately, there now appears to be no "well" to leave alone, as this report seems to make it quite clear that not only must immediate repairs be carried out to the structure itself, but that active steps must be taken to strengthen the foundations and to remove all hostile influences that may tend to weaken them or to damage still further an already enfeebled structure. One such hostile influence is referred to by Sir Francis Fox as having had its effect upon recent movements. The introduction of the heavy type of motor-omnibus, with its consequently increased vibration, in such close proximity to the building is a serious evil, from which he thinks the Cathedral should be protected by authority.

It is this latter aspect of the report dealing with the influences which tend to weaken either the structure or its foundations to which we think public attention should be particularly directed, as it is just the point that is most likely to be overlooked. The necessity for immediate repairs to the fabric itself is obvious, and we are quite confident that they will be at once carried out with the help of the best expert advice procurable without any prompting from us. But the presence of hostile influences, often obscure and indirect in their action, is not always so obvious. When the repairs to the structure itself are completed outside influences still have to be reckoned with, if we would remove all cause of future danger and leave the Cathedral in a condition of permanent stability.

Sir Francis Fox refers to the motor traffic, but there may be other and more obscure influences at work which did not come within the scope of this report—influences over which the Cathedral authorities have no control.

This appears to open up a wider question, and to include a consideration of the past history and present condition of the whole of the hill on which St. Paul's stands. We are inclined to think that before we can feel sure that the stability of St. Paul's is permanently secured it may be necessary to institute an exhaustive and comprehensive inquiry, and report, both from a geological and an engineering or architectural point of view, into the condition of the whole of the district surrounding St. Paul's—more particularly with reference to the slope of the hill from

the Cathedral to the River Thames, as well as that from the Cathedral to the valley of the Fleet. Here, for a thousand years or more building and engineering operations have been going on which may or may not have prejudicially affected the site upon which the Cathedral stands. Apart from the effect of the District Railway by the river and that crossing Ludgate-hill by the viaduct, there is the question of the buildings on the slope. It is, we suppose, the general opinion that in certain cases, more particularly where clay is concerned, the tendency of such a mass of buildings on a slope is to slip downhill, thus threatening the security of any building on its crest. It would certainly be useful to know whether any such tendency is noticeable in this case or not. There is also the continual reconstruction of the buildings in this area to be considered, with the periodical excavations and the occasional pumping operations which may be involved. In short, it would be well to know on good authority whether the heavy buildings surrounding St. Paul's and the continual operations caused by their periodical renewal tend to strengthen or to weaken its foundations. Sir Francis Fox's report also points to the necessity of diverting the heavy through traffic from the immediate neighbourhood of the Cathedral. This seems to involve that architectural rearrangement of its approaches and precincts which has so often been advocated in these columns. If such a scheme is not only to divert the traffic, but also to be a source of strength to the ground in which the Cathedral stands, it must be based on that precise knowledge of all the surrounding conditions and circumstances that such an inquiry would disclose.

It also seems to be the more necessary that such points as these should be considered, because of their bearing upon the final disposition of the new St. Paul's Bridge. If, for instance, the high buildings on the south side of St. Paul's Churchyard tend to strengthen the foundations, their removal is to be deplored; but if, assisted by the vibration of the motor traffic, they show any tendency to slide downhill, their removal to make way for a vista to the bridge would be most desirable. Their tendency in either direction may, of course, be negligible, but even then it would be well to have it definitely on record.

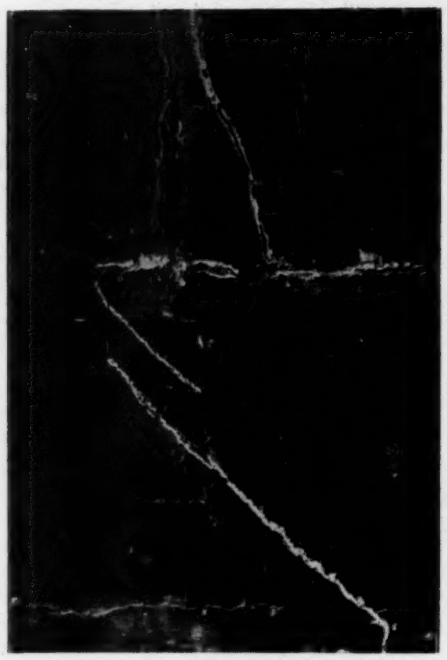
It is obvious that Sir Francis Fox's report seriously affects the whole scheme for St. Paul's Bridge. Indeed, it is not too much to say that it practically destroys the *raison d'être* of the present scheme and reopens the whole question. We have already expressed our opinion in a "Note" that, in view of this report, "the abandonment of the London County Council proposals to construct a tram subway in the immediate vicinity of the fabric is practically assured." We now see it reported that the Lord Mayor and Corporation are at one with the Cathedral authorities on this point, and we cannot believe that in face of this report the London County Council would wish to press the matter further. This seems to dispose of any reasonable hope of eventually linking up the north and south trams by way of this bridge.

There remains now the aspect of the bridge as a through traffic route for general vehicular traffic. In face of Sir Francis Fox's opinion, that heavy motor traffic in close proximity to the building is a serious evil from which the building should be protected by authority, what can be said of the proposal to bring such heavy traffic within 10 ft. or 15 ft. of the east end of the Cathedral, which a through traffic route would involve?

As our readers are aware, we have all along contended that the creation of a through traffic route at this particular spot is a fundamentally wrong idea, whether from the point of view of the traffic itself or of the Cathedral. Neither during the controversy on this question nor since have we seen any attempt made to controvert this proposition or to prove the opposite. We think that impartial opinion will be inclined to admit that Sir Francis Fox's report supports our contention that through traffic should not be concentrated on St. Paul's, and that the weight of his authority finally disposes of this aspect of the question also.

What, then, is the position of the London County Council, and what interest is it justified in maintaining in this bridge if it can no longer be regarded either as a tram link from north to south or as a through traffic route? It will surely have to consider whether it is worth while to bring trams over the bridge at all, if they are to be stopped on the south side of St. Paul's with no chance of future extension northwards.

It would appear also that this report has introduced a new element into the problem regarded from the point of view of the Corporation only. The foundations of the Cathedral need strengthening, not weakening, and, whether or not there is any apparent weakness or tendency to slide into the river on the part of the hillside below St. Paul's, there would seem to be every reason for endeavouring to arrange the bridge in such a way as to support and act as a buttress to the earth on which the foundations of the Cathedral rest. Here, again, a general



[*Photo. Topical.*

St. Paul's Cathedral: Some of the Cracks recently discovered.

survey of the whole situation in the light of this report would prove most useful.

As the trams cannot be taken past St. Paul's, there would not now appear to be the same reason for bringing them over Queen Victoria-street on a viaduct, and, unless a high-level bridge and viaduct is found to be a better support to the Cathedral than one landing in Queen Victoria-street, there would seem to be no reason whatever for the extra cost involved.

It seems evident, therefore, that from the point of view of the City Corporation, as well as from that of the London County Council, the whole question of this bridge should be reconsidered from the beginning. As we have frequently said, we believe the right idea is to develop Blackfriars Bridge and Farringdon-road, recommended by the Traffic Commission, as the through traffic route, and to keep this as a local traffic bridge connecting the City with the south side and relieving the through traffic of Blackfriars. As such it would naturally land as soon as possible for the immediate distribution of its local traffic, and it should equally naturally be so related to the Cathedral as to improve the appearance of both. Into the problem of how this should best be done enters the new element of the insecurity of the foundations of St. Paul's, and of the rearrangement of its approaches and precincts. For this reason only, if for no other, the whole problem should be reconsidered. This is a national question.

Whatever differences of opinion there may have been on its various aspects, we venture to believe that on one aspect at least we shall all be united—the safety of St. Paul's. Whatever our opinions in other points, St. Paul's still dominates the City, and must ultimately dominate the whole question.

THE PICTURES OF ALMA TADEMA AT THE ROYAL ACADEMY.

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BY LEONARD LEEPER, B.Eng., Assoc.M.Inst.C.E.

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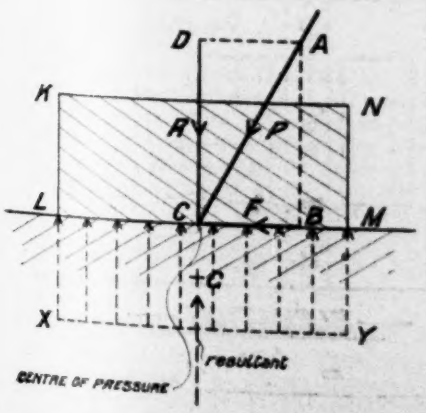

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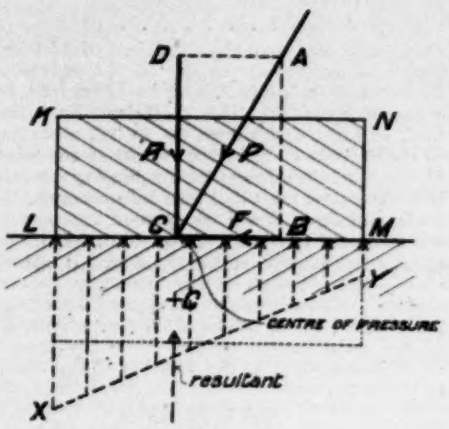

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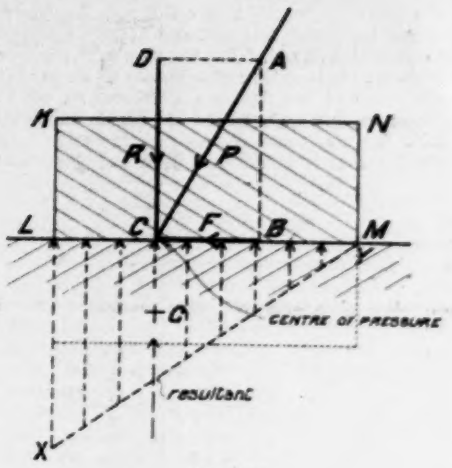

Fig. 3.

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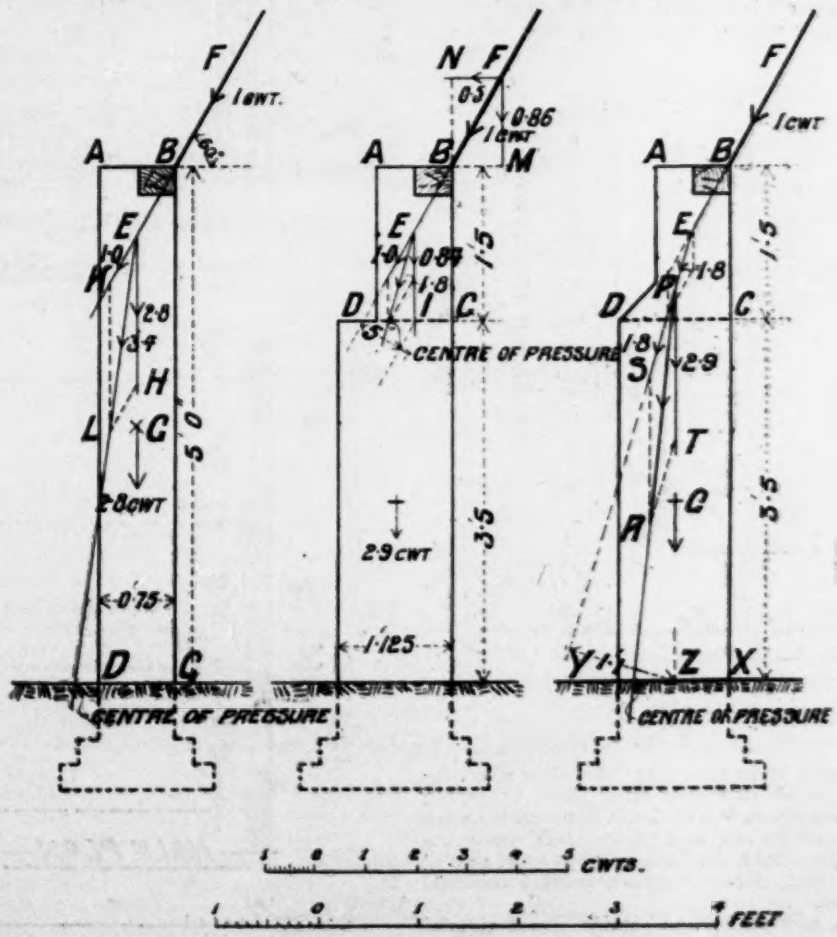


Figs. 4, 5, 6.

the Cathedral to the River Thames, as well as that from the Cathedral to the valley of the Fleet. Here, for a thousand years or more building and engineering operations have been going on which may or may not have prejudicially affected the site upon which the Cathedral stands. Apart from the effect of the District Railway by the river and that crossing Ludgate-hill by the viaduct, there is the question of the buildings on the slope. It is, we suppose, the general opinion that in certain cases, more particularly where clay is concerned, the tendency of such a mass of buildings on a slope is to slip downhill, thus threatening the security of any building on its crest. It would certainly be useful to know whether any such tendency is noticeable in this case or not. There is also the continual reconstruction of the buildings in this area to be considered, with the periodical excavations and the occasional pumping operations which may be involved. In short, it would be well to know on good authority whether the heavy buildings surrounding St. Paul's and the continual operations caused by their periodical renewal tend to strengthen or to weaken its foundations. Sir Francis Fox's report also points to the necessity of diverting the heavy through traffic from the immediate neighbourhood of the Cathedral. This seems to involve that architectural rearrangement of its approaches and precincts which has so often been advocated in these columns. If such a scheme is not only to divert the traffic, but also to be a source of strength to the ground in which the Cathedral stands, it must be based on that precise knowledge of all the surrounding conditions and circumstances that such an inquiry would disclose.

It also seems to be the more necessary that such points as these should be considered, because of their bearing upon the final disposition of the new St. Paul's Bridge. If, for instance, the high buildings on the south side of St. Paul's Churchyard tend to strengthen the foundations, their removal is to be deplored; but if, assisted by the vibration of the motor traffic, they show any tendency to slide downhill, their removal to make way for a vista to the bridge would be most desirable. Their tendency in either direction may, of course, be negligible, but even then it would be well to have it definitely on record.

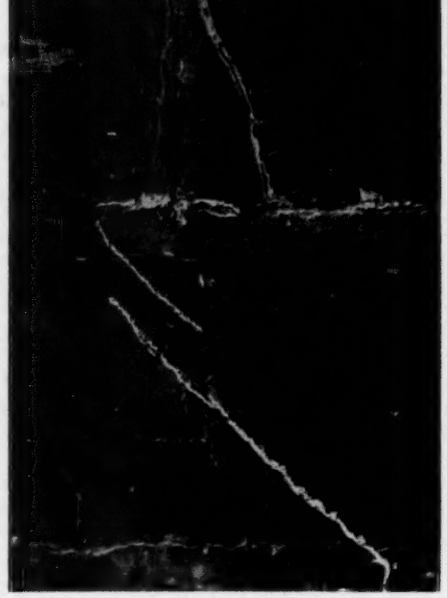
It is obvious that Sir Francis Fox's report seriously affects the whole scheme for St. Paul's Bridge. Indeed, it is not too much to say that it practically destroys the *raison d'être* of the present scheme and reopens the whole question. We have already expressed our opinion in a "Note" that, in view of this report, "the abandonment of the London County Council proposals to construct a tram subway in the immediate vicinity of the fabric is practically assured." We now see it reported that the Lord Mayor and Corporation are at one with the Cathedral authorities on this point, and we cannot believe that in face of this report the London County Council would wish to press the matter further. This seems to dispose of any reasonable hope of eventually linking up the north and south trams by way of this bridge.

There remains now the aspect of the bridge as a through traffic route for general vehicular traffic. In face of Sir Francis Fox's opinion, that heavy motor traffic in close proximity to the building is a serious evil from which the building should be protected by authority, what can be said of the proposal to bring such heavy traffic within 10 ft. or 15 ft. of the east end of the Cathedral, which a through traffic route would involve?

As our readers are aware, we have all along contended that the creation of a through traffic route at this particular spot is a fundamentally wrong idea, whether from the point of view of the traffic itself or of the Cathedral. Neither during the controversy on this question nor since have we seen any attempt made to controvert this proposition or to prove the opposite. We think that impartial opinion will be inclined to admit that Sir Francis Fox's report supports our contention that through traffic should not be concentrated on St. Paul's, and that the weight of his authority finally disposes of this aspect of the question also.

What, then, is the position of the London County Council, and what interest is it justified in maintaining in this bridge if it can no longer be regarded either as a tram link from north to south or as a through traffic route? It will surely have to consider whether it is worth while to bring trams over the bridge at all, if they are to be stopped on the south side of St. Paul's with no chance of future extension northwards.

It would appear also that this report has introduced a new element into the problem regarded from the point of view of the Corporation only. The foundations of the Cathedral need strengthening, not weakening, and, whether or not there is any apparent weakness or tendency to slide into the river on the part of the hillside below St. Paul's, there would seem to be every reason for endeavouring to arrange the bridge in such a way as to support and act as a buttress to the earth on which the foundations of the Cathedral rest. Here, again, a general



[*Photo. Topical.*

St. Paul's Cathedral: Some of the Cracks recently discovered.

survey of the whole situation in the light of this report would prove most useful.

As the trams cannot be taken past St. Paul's, there would not now appear to be the same reason for bringing them over Queen Victoria-street on a viaduct, and, unless a high-level bridge and viaduct is found to be a better support to the Cathedral than one landing in Queen Victoria-street, there would seem to be no reason whatever for the extra cost involved.

It seems evident, therefore, that from the point of view of the City Corporation, as well as from that of the London County Council, the whole question of this bridge should be reconsidered from the beginning. As we have frequently said, we believe the right idea is to develop Blackfriars Bridge and Farringdon-road, recommended by the Traffic Commission, as the through traffic route, and to keep this as a local traffic bridge connecting the City with the south side and relieving the through traffic of Blackfriars. As such it would naturally land as soon as possible for the immediate distribution of its local traffic, and it should equally naturally be so related to the Cathedral as to improve the appearance of both. Into the problem of how this should best be done enters the new element of the insecurity of the foundations of St. Paul's, and of the rearrangement of its approaches and precincts. For this reason only, if for no other, the whole problem should be reconsidered. This is a national question.

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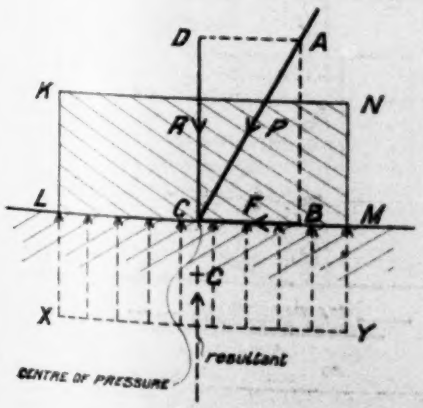

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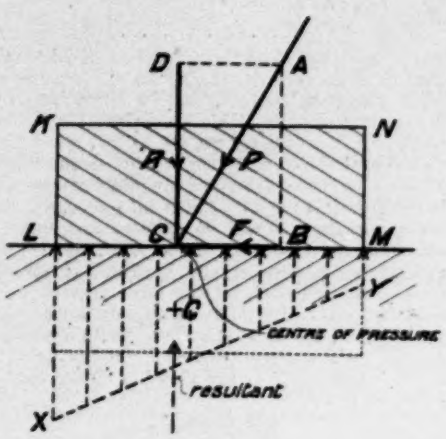

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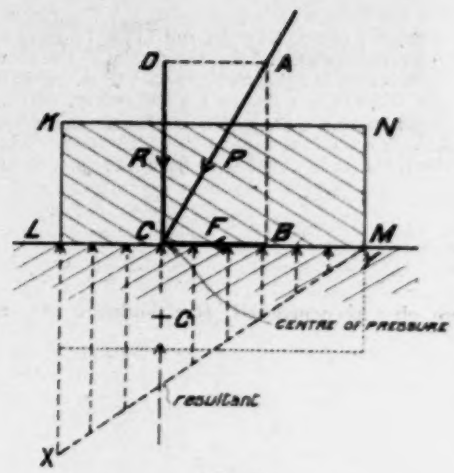

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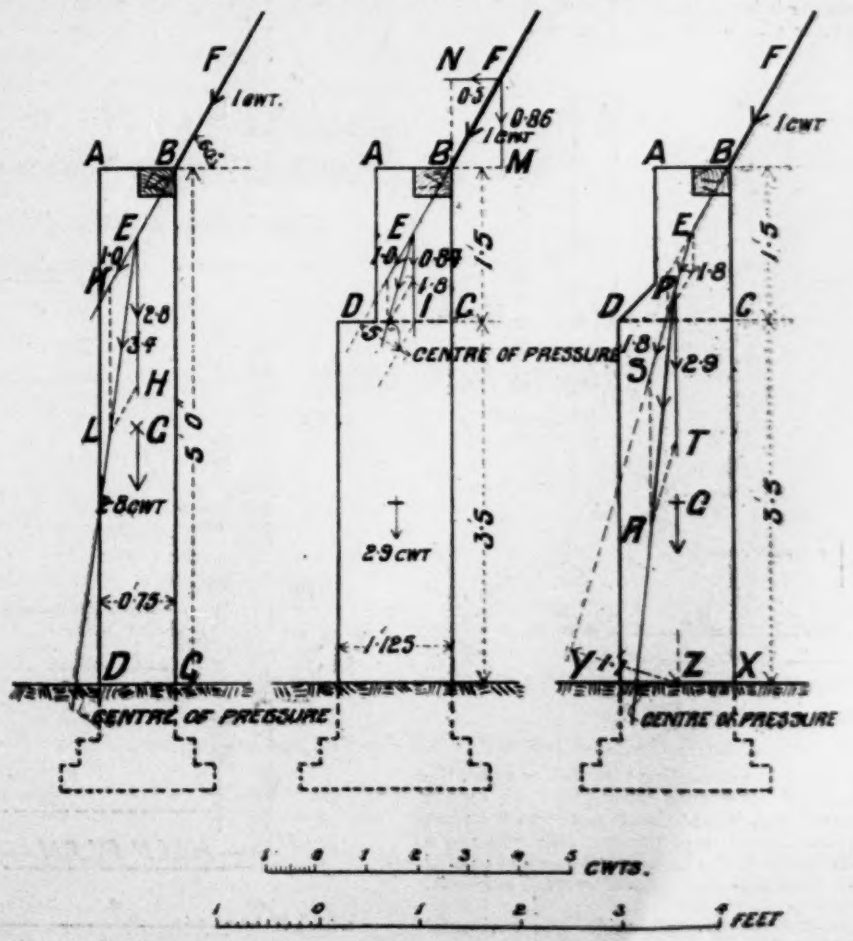


Figs. 4, 5, 6.

the resultant reaction acts through the centre of gravity of this triangle, and LC will be equal to one-third of LM. But the resultant reaction in each case is equal and opposite to R, so that the areas of the figures LXYM are all equal. Thus, in this case, where LC equals one-third LM, the maximum pressure at the edge L is double what it would have been had the centre

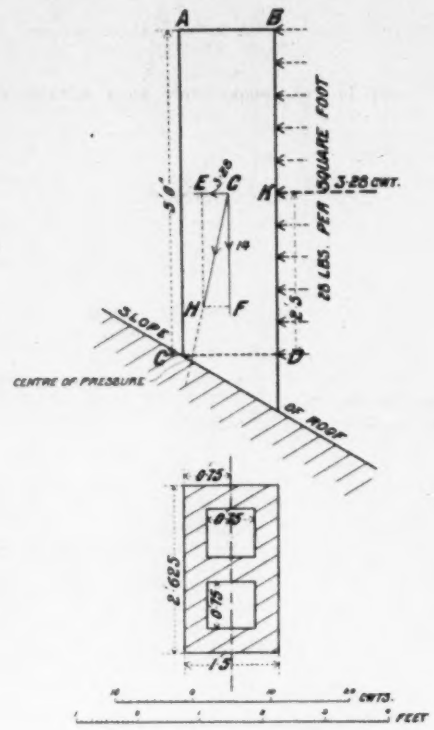


Fig. 7.

of pressure been at the centre of the section. It is evident that if the centre of pressure be moved still further towards L that the pressure at L will increase still more, whilst there will be little or no pressure at the edge M and inwards for a distance depending on the position of C. So that tensional forces may be developed at the edge M to produce equilibrium Thus, whenever it is proposed to load "green" brickwork, or where lime mortar of weak tensional

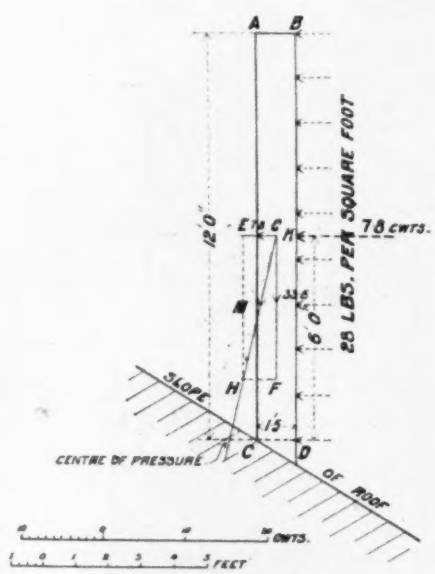


Fig. 8.

strength is the cementing material, or where the failure of structures might lead to serious consequences, it is advisable to design the work so that the centre of pressure falls within the middle third of the base, and thus avoid placing any part of the brickwork under a tensional stress.

It now remains to consider the horizontal component F. This component is balanced, so long as slipping does not occur, by the friction of the joint. The resistance to friction is given by the equation :—

$$F = \mu R \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

where μ is less than the coefficient of friction ; that is a number depending on the nature of the surfaces in contact, and is determined by actual experiment. This coefficient for brickwork surfaces varies from 0·4 to 0·7, according to the amount of moisture present at the joint. If, however, the strength of the jointing material is such that it may be taken into account, the horizontal force F will be opposed not only to the frictional resistance of the joint, but to the shearing resistance of the mortar. It should also be noticed that, as any force may be considered to have its point of application at any point in the line of action of the force, the effect of the horizontal component F on the joint is quite independent of the position of the centre of pressure C.

Brick Piers.

To take a simple practical example, suppose it is required to investigate the stability of an ordinary brick pier, 9 in. square, 5 ft. high, built in lias lime mortar and resisting a thrust of 1 cwt. inclined at 60 deg. to the horizontal. The safe load allowable for stock brickwork built in lias lime mortar should not exceed 5 tons per square foot (or 0·7 cwt. per square inch). The safe tensile strength of the mortar varies from ¾ ton to 2¼ tons per square foot (or 0·1 to 0·3 cwt. per square inch), depending on whether the mortar is fresh or over six months old.

Let ABCD (Fig. 4) represent the vertical section of the pier. In the present example there are two external forces acting on the pier, the thrust of 1 cwt. along the line FB at 60 deg. to the horizontal, and the weight of the pier itself acting at G, its centre of gravity. Brickwork can be assumed to weigh 1 cwt. per cubic foot. Therefore, the weight of the pier $= 0'{\cdot}75 \times 0'{\cdot}75 \times 5' = 2{\cdot}8$ cwt. Produce the lines of action of these two forces until they meet at some point E, and let this be their point of application. To any convenient scale set out EH, EK to represent 2·8 cwt. and 1 cwt. respectively, and complete the parallelogram KH. Then the diagonal EL represents the resultant of EH and EK both in magnitude and direction. To determine the centre of pressure produce EL to meet the ground line DC. It is seen from the figure that the centre of pressure falls outside the base of the pier. But it is proved in books on mechanics that when the resultant of a number of forces acting on a body falls outside the base of the body it must fall over. Thus the pier, as designed, would fail by overturning. To bring the centre of pressure within the figure the thickness of the pier must be increased. Let the thickness be 14 in. at a point 1 ft. 6 in. below the top of the pier (Fig. 5). The pier is now divided into two portions at DC, so that it is first necessary to determine the stability of the upper block ABCD, if satisfactory, then the remainder of the section must be treated in the same manner. The weight of ABCD is $0'{\cdot}75 \times 0'{\cdot}75 \times 1'{\cdot}5 = 0{\cdot}84$ cwt. Obtaining the resultant force as before, it is seen from the diagram that the centre of pressure now lies within the base of the upper block. Thus ABCD is safe from overturning.

It remains to be seen, however, whether this block is safe from crushing at the edges. From an inspection of the figure it is clear that the maximum compression will be at the edge D of the section. It is due to two totally separate and distinct forces :—(1) The pressures of the weight of the block itself and that of the vertical component of the inclined thrust, and (2) the

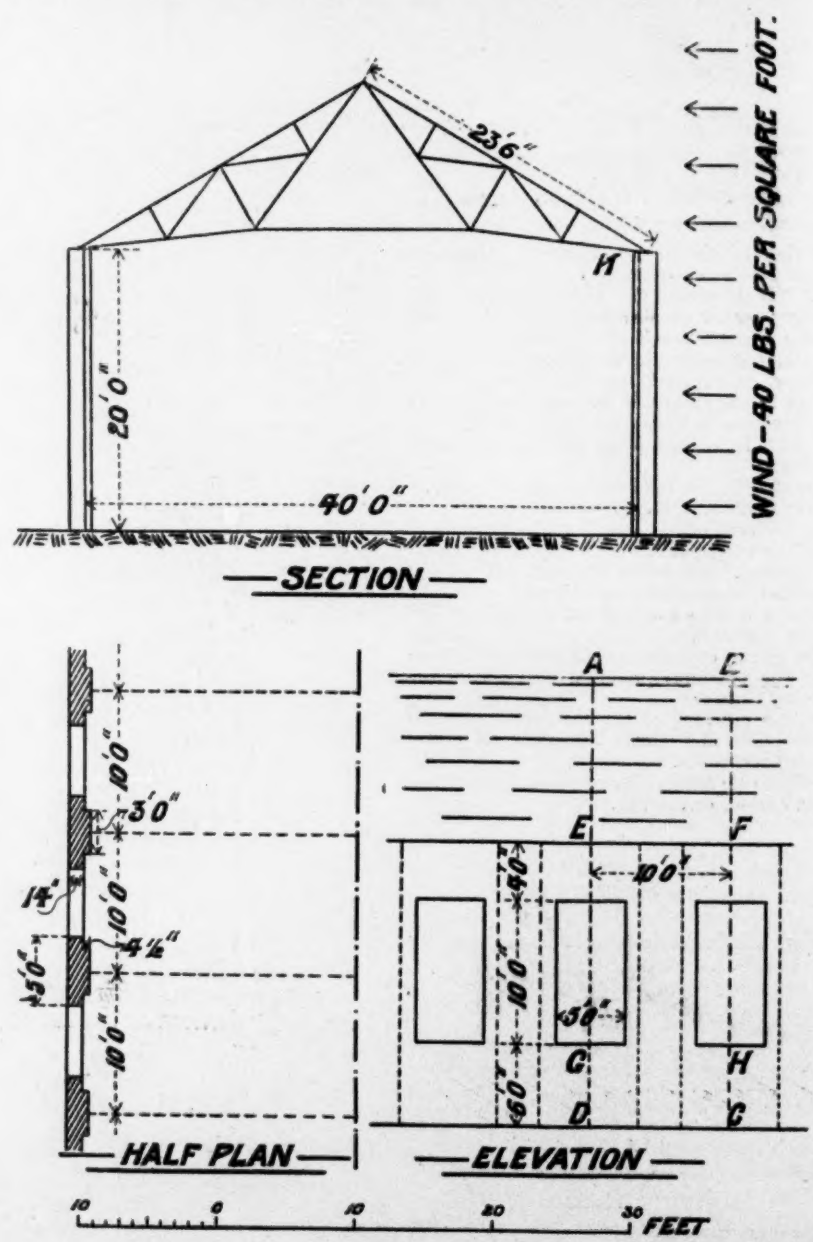


Fig. 9.

leverage of the inclined thrust about the neutral axis of the section DC at I. Now, the intensity of pressure due to the vertical load is obviously W A, where W is the sum of the weight of the block above DC, and the vertical component represented by FM, and A the area of the base at DC. The pressure due to the inclined thrust is not so easily determined. It is best obtained by means of the formula so often used in structural engineering :—

$p = \frac{My}{I}$ where p = intensity of pressure at a distance y from the neutral axis.
M = the bending moment of the thrust about the neutral axis of the section.
I = the moment of inertia of the section.

Thus the whole intensity of pressure at D or C of the section will be given by the formula :—

$$p = \frac{W}{A} \pm \frac{My}{I} \quad \ldots\ldots \quad (2)$$

The vertical component of the force of 1 cwt. represented by FB is 0·86 cwt., which must be added to the weight of the block ABCD to obtain the whole load W. The value of the bending moment at I due to the thrust =

$$\text{force} \times \text{perpendicular distance} = 1 \times 5 = 5 \text{ in. cwt.}$$

$$\text{The moment of inertia } I = \frac{1}{12}(9 \times 9^3) = 546{\cdot}7.$$

Substituting for these values in the above equation (2), we have for the extreme edges of the section :—

$$p = \frac{0{\cdot}84 + 0{\cdot}86}{81} \pm \frac{5 \times 4{\cdot}5}{546{\cdot}7}$$
$$= +0{\cdot}06 \text{ and } -0{\cdot}02 \text{ cwt. per square inch.}$$

That is, there will be a compression of 0·06 cwt. per square inch at the edge D, and a tension of 0·02 cwt. per square inch at the edge C, which is well inside the safe limits. Thus the upper block is safe against crushing. It must now be investigated for sliding.

The horizontal components of the force of 1 cwt. is represented in the figure by the line FN—it is 0·5 cwt. Taking the coefficient of friction at its maximum value 0·7 and substituting in equation (1), we have :—

$$F = 0{\cdot}7\ (0{\cdot}86 + 0{\cdot}84) = 1{\cdot}19 \text{ cwt.}$$

Consequently, as this resistance is still further strengthened by the shearing action of the mortar, the block ABCD will not fail by sliding along DC. So that this top block of 9 in. brickwork 1 ft. 6 in. deep can be considered as perfectly safe.

The lower block of the pier must now be taken into account. In this case the external forces acting on it are the inclined force of 1·8 cwt., represented by EP (Fig. 6), and the weight of the block DCXY acting at its centre of gravity G. The weight of this block is $0{\cdot}75 \times 1{\cdot}125 \times 3{\cdot}5 = 2{\cdot}9$ cwt. The line of action of these two forces is produced to meet in P and their resultant obtained by drawing the parallelogram PTRS. It is seen from the figure that this resultant produced falls inside the base of the pier, so that the whole pier is safe from overturning. It remains to determine the pressures produced on the extreme edges of the section XY. The moment of the pressure produced by the thrust of 1·8 cwt. = force × perpendicular distance = 1·8 × 13·5 = 24·3 in. cwt. The moment of inertia of the section is $\frac{1}{12}(9 \times 14^3) = 2058$. Substituting for these values in the equation (2), we have for the intensities of pressure at the extreme edges of the section :—

$$p = \frac{2{\cdot}9 + 0{\cdot}86}{126} \pm \frac{24{\cdot}3 \times 7}{2058}$$
$$= 0{\cdot}029 \pm 0{\cdot}082$$
$$= +0{\cdot}12 \text{ and } -0{\cdot}05 \text{ cwt. per square inch.}$$

Thus the pressure produced on the outside edge of the section is 0·12 cwt. per square inch compression, and 0·05 cwt. per square inch tension on the inside edge of the wall. Consequently the pier, as designed, would be quite safe. As the top block was shown to have a safe resistance against any sliding action, the lower block will increase this resistance by virtue of its greater weight, so there is no necessity to take sliding any further into account.

Wind Pressure.

The pressures produced by the wind acting on exposed surfaces have been the subject of numerous investigations in this country. Until the Tay Bridge disaster 25 lb. to 40 lb. per square foot of exposed surface was considered ample allowance. for any storm according to the position the structure occupied. The Commission appointed by the Board of Trade in 1881 found indicated pressures of on one occasion 90 lb. per square foot.* Messrs. Fowler and Barker carried out a large number of experiments at the Forth Bridge with pressure boards of varying dimensions. The results of their experiments proved that the average pressures over large areas are greater than those over small areas. In the British Isles any building designed to withstand an average pressure of 56 lb. per square foot of exposed surface, acting perpendicular to it, would be deemed to be quite safe in any position. For low buildings in sheltered positions where the friction produced by the ground or surrounding buildings retards the velocity of the wind, an allowance of half this amount would be quite sufficient, and is all that modern practice requires. In the generality of cases the wind pressure is taken at 28 lb. per square foot of exposed surface acting at right angles to it.†

Brick Chimney.

As a practical application of these principles, the stability of the ordinary brick chimney shaft affords a useful and instructive example. In the diagram (Fig. 7) a brick shaft projecting 5 ft. above the roof is shown. There are two 9-in. brick flues built in 4½-in. work, and the cementing material is good lias lime. The wind is assumed to give an average horizontal pressure of 28 lb. per square foot of vertical surface. It is readily seen that the shaft is most liable to fail by overturning or crushing at the joint CD, for the wind pressure obviously exerts the greatest leverage about this joint. Thus it is sufficient to test the stability of the block ABCD.

There are two external forces acting on the shaft, the resultant pressure due to the wind and the weight of the shaft itself. As the wind pressure will be evenly distributed over the whole exposed surface, its resultant can be assumed to act in a horizontal direction at the centre of gravity of this surface K. Its value is $\frac{28 \times 2{\cdot}625 \times 5}{112} = 3{\cdot}28$ cwt. The area of the base of the shaft is $(2{\cdot}625 \times 1{\cdot}5 - 2 \times 0{\cdot}75 \times 0{\cdot}75) = 2{\cdot}8$ sq. ft. The weight of the brickwork itself above the joint CD is $2{\cdot}8 \times 5 = 14$ cwt., which acts vertically at G, the centre of gravity of the shaft. Produce the line of action of these two forces to meet at G. Draw GE, GF to represent the forces of 3·28 cwt. and 14 cwt. respectively to a suitable scale. Then GH is their resultant, which, if produced, falls inside the base at CD. Thus the shaft is safe from overturning for the given wind pressure.

Next, the pressures produced on the windward and leeward edges of the section at CD must be obtained. The moment of the wind pressure at CD is $\frac{3{\cdot}28 \times 2{\cdot}5}{20} = 0{\cdot}41$ ft. ton. Also the moment of inertia of the section is

$$\tfrac{1}{12}\left[\left\{2{\cdot}625 \times (1{\cdot}5)^3 - 2 \times 0{\cdot}75 \times (0{\cdot}75)^3\right\}\right] = 0{\cdot}6855.$$

Substituting for these values as before in the equation (2), we obtain the following pressures :—

$$p = \frac{0{\cdot}7}{2{\cdot}8} \pm \frac{0{\cdot}41 \times 0{\cdot}75}{0{\cdot}6855}$$
$$= 0{\cdot}25 \pm 0{\cdot}45 \text{ tons per square foot.}$$

Thus there will be a compression of 0·7 tons per square foot at the extreme leeward edge of the brick shaft, and a tension of 0·2 tons per square foot at the windward edge. These values are well within the safe resistances of brickwork built in lias lime mortar.

As regards sliding, the force tending to cause this is wind pressure of 3·28 cwt., and the maximum resistance to sliding at the joint CD is by equation (1) $0{\cdot}7 \times 14 = 9{\cdot}8$ cwt., thus there is no fear of failure by sliding.

It is interesting to discover the height this shaft would have to be in order to develop the full strength of the mortar with the given wind pressure. Try a height of 12 ft. above the

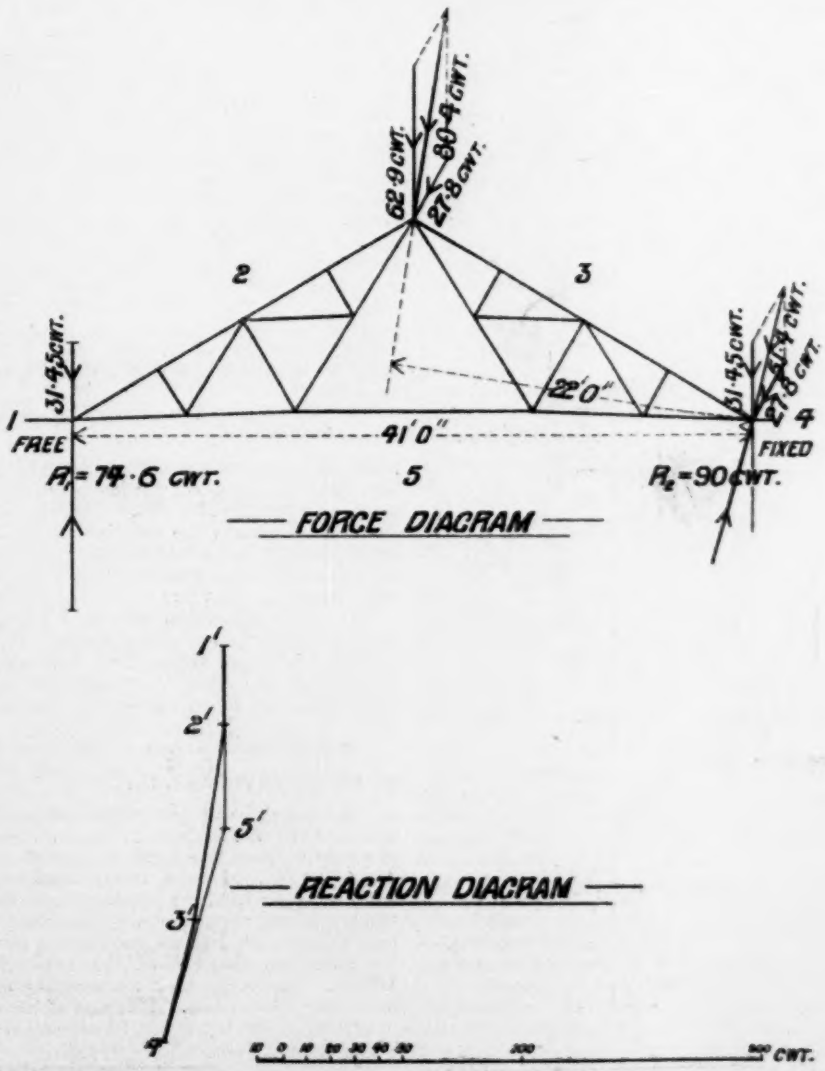


Fig. 10.

* Page 3 of Report.
† The London County Council (General Powers) Act, 1909, sect. 22 (20), gives 30 lb. per square foot.

joint CD (Fig. 8). Then the following values must be substituted in equation (2) :—

$$W = \frac{2{\cdot}8 \times 12}{20} \text{ tons.}$$

$$A = 2{\cdot}8 \text{ sq. ft.}$$

$$M = \frac{2{\cdot}625 \times 12 \times 28 \times 6}{2240} \text{ ft. tons.}$$

$$y = 0{\cdot}75 \text{ ft. for extreme edges.}$$

$$I \times 0{\cdot}6855 \text{ (ft.)}^4.$$

Thus

$$P = \frac{2{\cdot}8 \times 12}{2{\cdot}8 \times 2{\cdot}8} \pm \frac{2{\cdot}625 \times 12 \times 28 \times 6 \times 0{\cdot}75}{2240 \times 0{\cdot}6855}$$

$$= 0{\cdot}6 \pm 2{\cdot}6 \text{ tons per square foot.}$$

So that with a shaft 12 ft. high the pressure on the extreme leeward edge of the section at CD would be 3·2 tons per square foot, and the tension on the extreme windward edge 2 tons per square foot.

Thus the shaft will be dangerous at this height. The centre of pressure now falls outside the base CD, showing that the stability of the shaft below M depends entirely on the tensional strength of the mortar, at all times a questionable strength. If the chimney were carried up to this height the lower courses up to M at least should be built in good Portland cement.

Walls with Piers.

Another case in which it is advisable to determine the dimensions of the walls necessary for stability is that of the public hall, garage, or workshop where the walls are constructed with piers carrying the roof principals. For instance, consider the building whose section, half-plan, and elevation are given in the figure (No. 9). The walls are 14 in. thick, 20 ft. high, with buttresses 4½ in. × 3 ft., and are pierced with window openings 5 ft. × 10 ft. placed 6 ft. above the ground level and between the piers carrying the roof principals, as shown. Also, suppose the building be erected in an exposed situation, where the maximum horizontal wind pressure registers 40 lb. per square foot of vertical surface.

As the structure is divided into bays 10 ft. wide, which are all similar, it will simplify the calculations, and produce the same result if all the forces acting on one 10-ft. portion be taken into account and tested for stability (say, ABCD, Fig. 9). The external forces acting on the wall and tending to overturn it are (1) the resultant force composed of the weight of the roof truss and the wind pressure on the roof acting in some direction through the point of support K, and (2) the resultant of the horizontal wind pressure on the vertical wall surface at its centre. The resisting forces to overturning are the weight of the wall itself acting at its centre of gravity and the tenacity of the mortar joints on the windward edge at or near the base of the wall. From an inspection of the diagram it is clear that the wall is least able to resist the overturning forces at the level of the window-sills GH, the point where the cross-section of the wall is at a minimum. Thus it is sufficient to ensure the safety of the whole wall if the dimensions necessary for stability are satisfied for the portion of the wall above GH.

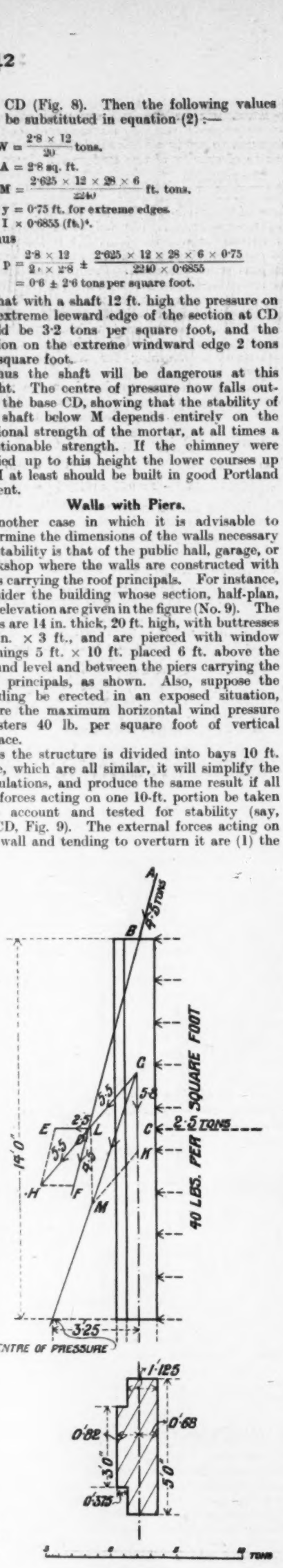


Fig. 11.

The resultant thrust of the pressures of the roof truss on the wall must now be obtained. The effect of the horizontal wind pressure on the inclined surface of the roof is first required. This is usually abstracted from a table of values drawn up from Hutton's empirical formula $P_n = P \sin \alpha^{1{\cdot}84} \cos \alpha - 1$, where P is the pressure on a unit area of the surface perpendicular to the direction of the wind, and P_n the normal pressure on a surface inclined at an angle α to the horizontal. In the present case where P is 40 lb. per square foot and the angle α 30 deg., the normal wind pressure is given as 26·5 lb. per square foot. This wind pressure can only act upon one side of the roof at a time. Its amount is $\frac{26{\cdot}5 \times 23{\cdot}5 \times 10}{112} = 55{\cdot}6$ cwt., which must be divided up into the two points of support of the principal rafters of the right-hand portion of the roof, as shown in the figure (No. 10). The structural load due to the weight of the truss, roofing material, etc., can be assumed to weigh 30 lb. per square foot of roof surface. It is $\frac{2 \times 23{\cdot}5 \times 10 \times 30}{112} = 125{\cdot}8$ cwt., or 31·45 cwt. each at the two points of support, and 62·9 cwt. at the apex of the truss. The forces acting at the extremities of the right-hand portion of the principal rafters are compounded into single resultant forces represented both in magnitude and direction by the diagonals of the parallelograms, as shown. Thus there are three forces acting on the roof truss whose magnitudes and directions are known. It is required to determine the reactions. In most text-books the lines of action of these reactions are assumed to be parallel, and their respective magnitudes obtained by drawing the polar diagram and funicular polygon in the usual way. But all that is necessary is that the lines of action of the reactions should meet on the lines of the resultant of the load and wind pressure or be parallel to it. Therefore it is better to assume that the truss is supported on smooth runners at the left-hand support, and thus to take the reaction there as vertical, the right hand only being fixed. In the figure the load lines 1′2′, 2′3′, and 3′4′ are drawn to scale parallel and equal to the loads on the truss. Taking moments about the fixed point of support (the right hand) of the roof truss, we have :—

$$80{\cdot}4 \times 22 + 31{\cdot}45 \times 41 - R_1 \times 41 = 0.$$

$$\therefore R_1 = 74{\cdot}6 \text{ cwt.}$$

where R_1 is the reaction of the left-hand support. The line 1′5′ is set off vertically to the same scale to represent 74·6 cwt. Then the closing line 4′5′ represents the reaction at the right-hand point of support of the roof truss due to its weight and wind pressure both in magnitude and direction. Its value is 90 cwt., or 4·5 tons.

The plan and vertical section of the pier is next drawn out to a suitable scale (Fig. 11). The thrust of the roof truss which has just been determined (4·5 tons) is represented both in magnitude and direction by the straight line AB.

The horizontal pressure of the wind acting on the vertical surface of the wall is $\frac{40 \times 10 \times 14}{112 \times 20}$ = 2·5 tons, and can be assumed to act at the centre of the wall surface C. Produce the lines of action of these two forces to meet at D, and draw DE, DF, 2·5 and 4·5 units long to represent the thrust from the roof and the horizontal wind pressure respectively. Then their resultant is represented in magnitude and direction by DH, the diagonal of the parallelogram DEHF. The only other force acting on the brick pier is its weight. This acts at the centre of gravity of the brick pier, its amount is :—

$$\frac{1{\cdot}125 \times 10 \times 14 - 1{\cdot}125 \times 10 \times 5 + 0{\cdot}375 \times 3 \times 14}{20} = 5{\cdot}8 \text{ tons.}$$

Producing the lines of action of these two forces

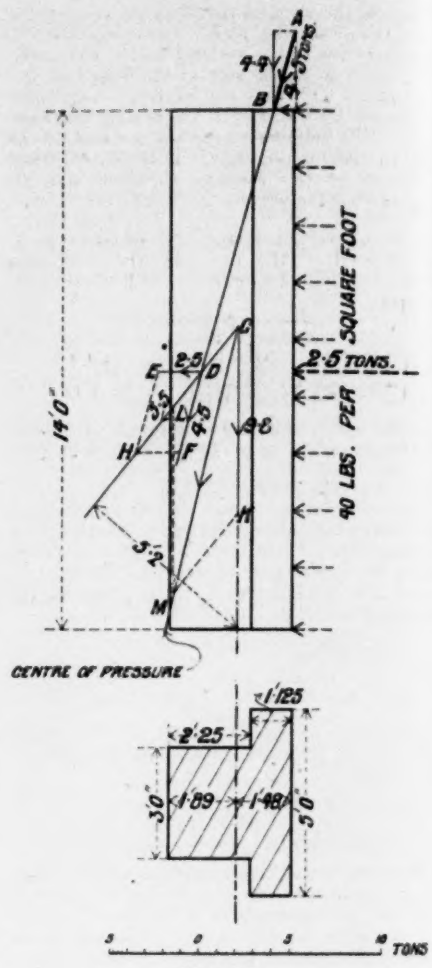


Fig. 12.

to meet at some point G, and completing the parallelogram GLMK, it is seen that GM represents the final resultant of the forces acting on the pier. To obtain the centre of pressure, produce GM to meet the horizontal line through the sills; it is 3·25 ft. distant from the centre of gravity of the pier. Therefore the wall as designed would not be safe against overturning. Consequently the section of the pier must be increased.

Try increasing the buttresses to 2 ft. 3 in. thick, as shown in the next figure (No. 12). Proceeding as before, the resultant of the roof thrust and the wind pressure on the vertical wall surface is represented by the line DH both in magnitude and direction. The distance of the centre of gravity from the edge of the pier must next be obtained. It lies 1·89 ft. distant from the leeward edge of the buttress. The weight of the brickwork is

$$\frac{1{\cdot}125 \times 10 \times 14 - 1{\cdot}125 \times 10 \times 5 + 2{\cdot}25 \times 3 \times 14}{20} = 9{\cdot}8 \text{ tons.}$$

Combining the weight of 9·8 tons with the force represented by DH, it is evident that the resultant force tending to overturn the pier is represented by the diagonal GM of the parallelogram GKML. Producing this line to obtain the centre of pressure at the line drawn through the level of the window-sills, it is readily seen that the centre of pressure lies just outside the base of the pier at this level. It remains to be seen whether the intensities of pressure produced at the windward and leeward edges of the pier are within the safe limits of the materials of construction. These intensities may be determined by means of the formula (No. 2), as before. The vertical pressure due to the weight of the wall and the vertical component of the thrust of the 4·5 tons is 9·8 + 4·4 = 14·2 tons. The area of the brickwork pier at the window-sill level is 3 × 2·25 + 5 × 1·125 = 12·375 sq. ft. The bending moment due to the resultant of the thrust of the roof and the wind pressure on the vertical wall surface (represented by DH in the figure) about the neutral axis of the section is 5·5 × 5·2 = 28·6 ft. tons. Also the moment of inertia of the cross-section of the pier is $\frac{1}{3}[3 \times (1{\cdot}89)^3 + 5 \times (1{\cdot}48)^3 - 2 \times (0{\cdot}36)^3] = 12{\cdot}1232$. Substituting for these values in the formula, the following intensities are obtained :—

$$p = \frac{14{\cdot}2}{12{\cdot}375} - \frac{28{\cdot}6 \times 1{\cdot}48}{12{\cdot}1232}$$

= 2·3 tons per square foot of tensional stress

at the extreme edge of the section on the windward side of the pier and

$$p = \frac{14{\cdot}2}{12{\cdot}375} + \frac{28{\cdot}6 \times 1{\cdot}80}{12{\cdot}1234}$$

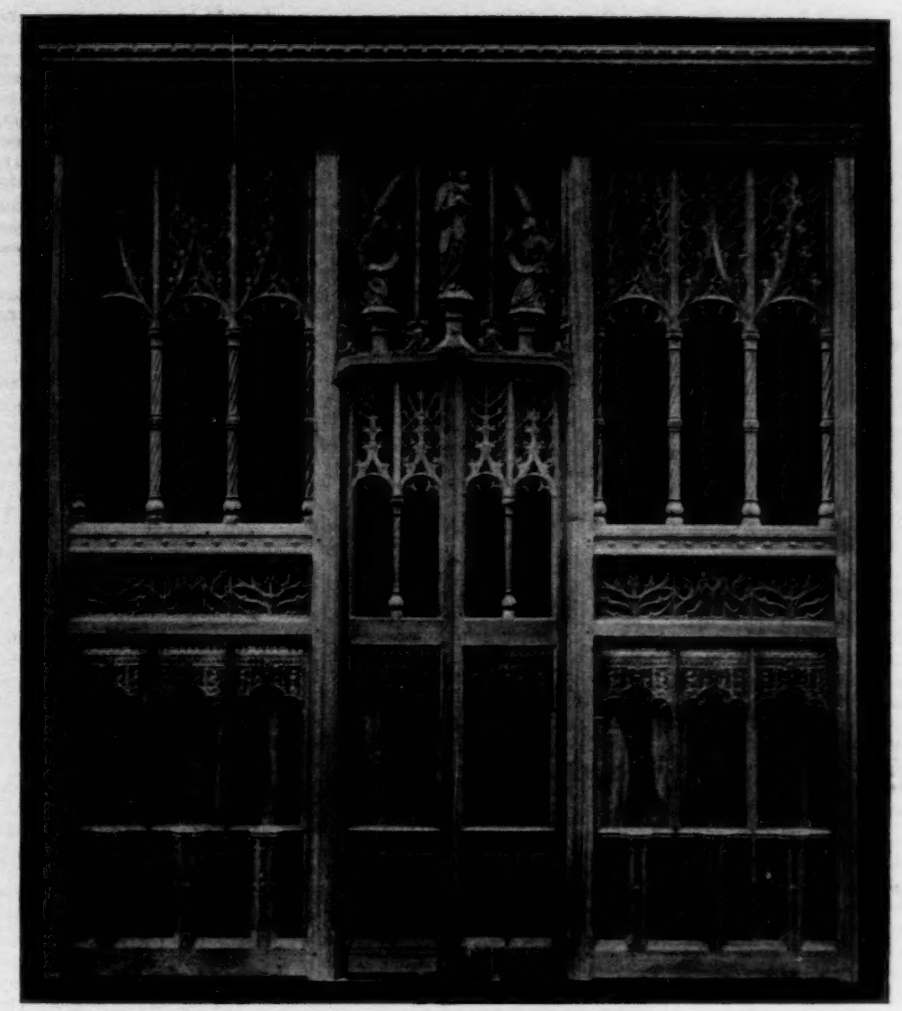
= 5·6 tons per square foot of compressional stress at the extreme edge of the section on the leeward edge of the pier. But these values are slightly in excess of the safe resistances allowed for a brick wall built in good lias lime mortar. Therefore, in order to construct the walls strong enough to resist with safety the excessive loading assumed in the example, the buttresses would have to be increased an additional 4½ in. in depth.

SCREEN IN ST. AIDAN'S CHURCH, BIRMINGHAM.

THIS screen to the Lady Chapel of St. Aidan's Church, Small Heath, Birmingham, has been executed by Messrs. R. L. Boulton & Sons, of Bath-road, Cheltenham, from the design of Messrs. Bligh Bond & Anderson, of Glastonbury, and has been erected at the end of the north aisle of the church to form a partition to the new Chapel of Blessed Virgin, which has been arranged on the north side of the chancel within the existing walls, in the space which was formerly allotted to the organ. The latter is now placed on a loft above the new chapel, and will in due time receive the addition of a carved gallery front and organ-case.

The screen is executed in American whitewood, and has received an entire treatment in gold and colours, following some of the best mediæval examples. The design, of a somewhat unusual type, is adapted to some extent from the existing XVIth-century screenwork in one or two remote parish churches in Devonshire—namely, Colebrook and Brushford, which exhibits remarkable traces of foreign influence.

It is intended shortly to complete the series of screens in St. Aidan's Church by the addition of a central rood-screen, with a canopied loft, and a south aisle screen in line with it. A rood-beam has already been erected, together with a large rood and figures of SS. Mary and John, and the eastern bay of the nave roof has been enriched with a panelled canopy of honour, coloured and gilt. The dedication of the Lady Chapel and the rood took place on Saturday, December 21, 1912.



Screen in St. Aidan's Church, Birmingham.

Messrs. Bligh Bond & Anderson, Architects.

ARCHITECTURAL SOCIETIES.

Royal Institute of the Architects of Ireland.

An ordinary meeting of the Council of the Royal Institute of the Architects of Ireland was held at 31, South Frederick-street on the 6th inst., the President, Mr. Albert E. Murray, R.H.A., in the Chair.

A communication was received from the Royal Institute of British Architects approving the amendments proposed in the Articles of Association, and the Hon. Secretary was instructed to send printed copies to the Board of Trade for their sanction. A further communication from the British Institute suggesting that in places where there was a recognised School of Architecture it might be desirable to entrust the conduct of the examinations to these schools, and the matter was referred to Professor Scott.

The following were elected on the Standing Committees:—

Professional Practice.—W. Kaye-Parry, G. L. O'Connor, Lucius O'Callaghan.

Publication.—F. Hayes, R. C. Orpen, J. H. Webb.

Arts.—C. H. Ashworth, Page L. Dickenson, G. P. Sheridan.

Examination.—C. A. Owen, F. Batchelor, R. C. Orpen.

ENGINEERING SOCIETIES.

The Institute of Sanitary Engineers.

The general meeting of the members of this Institute was held on the 17th ult. at the offices, 120-122, Victoria-street, Westminster, when the President, Mr. A. J. Martin, M.Inst.C.E., took the chair.

The Report of the Council stated that during the year 1912 the Institute has materially improved its position in regard to status, its influence, and particularly its finance.

The statement of accounts, balance-sheet, and auditors' report for last year were received and approved, the figures showing a material reduction in the outstanding liabilities; and it was intimated that the Council anticipated the financial results of the present year would show a still further improvement.

For the President for the coming year the Council had nominated Mr. H. Percy Boulnois, M.Inst.C.E., past-President of the Institute of Municipal and County Engineers and Chairman of the Council of the Royal Sanitary Institute. His election was carried unanimously. Mr. Boulnois will give his Presidential address on Monday, January 20, at Caxton Hall, Westminster.

A special vote of thanks to Mr. Martin for the great interest he had shown in promoting the welfare of the Institute during his two years' Presidency was heartily carried, and the proceedings ended with the President's reply.

GENERAL NEWS.

Appointments:

British Museum.

Mr. Laurence Binyon, Assistant Keeper since 1909, Prints and Drawings Department, has been placed in charge of the newly-created Sub-Department of Oriental Prints and Drawings. Mr. Binyon proceeded from St. Paul's School to Trinity College, Oxford, and entered, in 1893, the Printed Books Department, whence he was transferred to that of Prints and Drawings. In 1898-1907 he edited a Catalogue of English Drawings in the Museum, Vols I.-IV. He is the author of "The Flight of the Dragon," "Painting in the Far East," and other books upon the history of pictorial art in Asia; of "English Metalwork" (from the W. Twopeny collection of drawings); "The Mind of the Artist"; and of lectures and papers upon Japanese prints and painting, sculpture in China and Japan, Chinese Art, and kindred topics, besides many poems and plays.

Cawnpore.

Mr. J. G. Alexander, Assistant Surveyor to the City of Westminster Council, and a qualified engineer, has been appointed as Chief Surveyor, Cawnpore.

Victoria and Albert Museum.

The President of the Board of Education has decided to appoint an Advisory Council for the Victoria and Albert Museum. The following persons have up to the present date consented to serve:—The Right Hon. Lord Reay, K.T., G.C.S.I., G.C.I.E. (Chairman), Mr. R. H. Benson, Mr. R. Blomfield, A.R.A., Sir Edward T. Cook, Mr. J. H. Fitzhenry, Mr. R. E. Fry, Mr. Frank Green, Lady Horner, Mr. Elijah Howarth, F.R.A.S., F.Z.S., the Earl of Lytton, the Countess of Plymouth, Sir Isidore Spielmann, C.M.G., F.S.A. The Council will be asked to advise the Board on questions of principle and policy arising from time to time, and to make an annual report on their proceedings to the Board, together with any observations on the condition and needs of the Museum which they may think fit to make.

The London Society.

A public meeting of the London Society will be held at the Mansion House on Monday, January 13, at four o'clock in the afternoon. The Lord Mayor will preside, and among the speakers will be the Earl of Plymouth (the President of the Society), Earl Curzon, Earl Cadogan, Sir Aston Webb, and Mr. Harold Cox. The Lord Mayor will be supported on the platform by Sir John Young, Sir Thomas Brock, Sir Boverton Redwood, Sir William B. Richmond, and others.

St. Paul's Cathedral.

Dean Inge is to preside this evening at the public lecture, "St. Paul's Cathedral," which Mr. Mervyn Macartney, the Consulting Architect, will deliver at the Y.M.C.A., 186, Aldersgate-street.

The Surveyors' Institution.

Sir Edward Boyle, Bart., will be present at the ordinary general meeting of the Surveyors' Institution at 8 p.m. on Monday, January 13, for the purpose of presenting to the Institution a portrait in oils of his father, the late Sir Edward Boyle, Bart., K.C., M.P., who, prior to being called to the Bar, practised as a surveyor and was a Fellow of the Institution. The discussion upon Mr. Konstam's paper on the evidence before the Departmental

Committee on Imperial and Local Taxation, read on November 25, will be resumed by Mr. Theodore Chambers, Fellow.

University of London: Extension Lectures at the Museums.

The courses of lectures by Mr. S. C. Kaines Smith, M.A.Cantab., at the British Museum, on "Greek Art and National Life," and at the Victoria and Albert Museum, on "Five Centuries of Decorative Art," will be continued weekly during the spring, beginning on Tuesday, January 14, and Thursday, January 16, respectively. The former course will carry on the history of Greek art from the Vth century B.C. to the end of Greek independence, and the latter will deal with the activities of the mediæval artist in glass, ivory, enamels, illumination, and book production, etc. Both courses are designed to illustrate the interdependence of art and daily life Demonstrations will be held at the Museums by arrangement in connexion with these lectures. For prospectus, etc., application should be made to the Hon. Secretary, Miss Claire Gaudet, 120, Cheyne Walk, Chelsea.

English Church Bells.

Mr. Henry Frowde announces a new volume in the Church Art Series dealing with the subject of English church bells. The author is Mr. H. B. Walters, joint-editor of volumes on the church bells of Essex and Warwickshire. Specimens are given of the dedications, inscriptions, and stamps on bells. The volume also contains an account of mediæval and post-Reformation founders and foundries. The volume will be illustrated with photographs and drawings.

Shoreditch Parish Church Bells.

A fund is opened for the unfixing and overhauling, at a computed cost of 300*l*., of the famous peal of twelve bells which have been rung during nearly two hundred years past—that is, since the completion in 1740 of the present church as designed by George Dance the elder. The bells will be removed shortly to Warner's Foundry.

The Layard Collection.

By the death of Lady Layard, of Ca' Capello, Venice, and No. 3, Savile-row, London, widow of the Right Hon. Sir Henry Austen Layard, her husband's collection of Venetian and other Italian paintings passes to the National Gallery, and the pictures will be removed shortly from Venice to London, in charge of Sir Charles Holroyd, Director of the National Gallery.

An Exhibition of Seascapes.

An exhibition of the work of Mr. F. J. Mortimer, F.R.P.S., will be open from Monday next until February 22 in the Meeting and Exhibition Room at the Camera Club, 17, John-street, Adelphi, London. The exhibition will include examples of nearly all the best-known printing processes, and will depict a great number of phases of the sea.

Exhibition of Hospital Designs.

The seventeenth International Congress of Medicine is to be held in London from August 5 to 12, 1913. An exhibition is also to take place in connexion with the Congress, and will be located in the University of London (Imperial Institute). The exhibition will include the following sections:—Hospital design, construction, arrangement, and equipment, and sanitary and other appliances for the ward and sick-room. Applications for spaces and for full particulars of the exhibition should be addressed to the "British and Colonial Druggist," Ltd., 194, Bishopsgate, London, E.C.

BOOKS RECEIVED.

A SMALL COLLECTION OF ANCIENT ROSETTES AS FOUND ON ROMAN MONUMENTS. Engraved by Carlo Antonini. (London: J. Tiranti & Co.)

FOUNDATIONS AND MACHINERY FIXING. By F. H. Davies. (London: Constable & Co. 2s. net.)

RAILWAY CONSIGNMENT NOTES. By B. O. Bircham. (London: Butterworth & Co.)

SYMBOLISM OF ANIMALS AND BIRDS REPRESENTED IN ENGLISH CHURCH ARCHITECTURE. By A. H. Collins. (London: Pitman & Sons. 5s. net.)

HIGHWAYS AND BYWAYS IN SOMERSET. By E. Hutton. (London: Macmillan & Co. 5s. net.)

BOOKS.

Letchworth (Garden City) and Hitchin, Hertfordshire, with their Surroundings. (Ordnance Map.) A Handbook for North-West Hertfordshire. By the late GEORGE AYLOTT and W. PERCIVAL WESTELL, F.L.S. With Introduction by EBENEZER HOWARD. Illustrated from Photographs, etc. (The Homeland Handbooks, No. 79.) (The Homeland Association, Ltd., Bedford-street, Strand, W.C. 2s. 6d. net.)

IN the compass of this small guide-book a great deal of interesting information is gathered together concerning a district as fascinating in its quiet way as any in the Home Counties. It is in the main accurate, and the book is written in a lucid and easy style. The authors have been able, in treating of this locality, not only to draw upon antiquity, but also the recent undertaking of the laying-out and partial building of the first garden city at Letchworth.

The late George Aylott was a man who, though with little leisure, was a keen antiquary, and was able to gather together a considerable amount of information on the antiquities of the district. After his retirement from the public service in which he was engaged, he acted as a capable guide for the First Garden City, Ltd., to visitors to their estate. There are but few of his kind in England, and his loss is to be deplored. Several of his writings are preserved in the *Transactions* of the East Herts Archæological Society, of which he was an honorary member.

The book opens with an account of the modern undertaking at Letchworth, and proceeds to deal with the antiquities on the estate, especially with the old parish church, of unknown dedication, but fortunately left much in the condition it was in when the property passed to the control of the company; and with Letchworth Hall, now an hotel, which has not shared the same treatment as the church, but still contains some Jacobean mantelpieces and a panelled screen in the hall. It deals also with Willian Church, in which by error surely some wretched plaster panelling behind the altar is described as "very graceful later screen-work in front of the altar"; with Norton, and with some ancient roads and camps.

Of the fine Church of St. Mary at Hitchin the notice is all too brief, though brought up to recent date by recording the discovery of early foundations under the nave floor. This building is undoubtedly worth a monograph of its own.

In describing the old house in Bancroft, Hitchin, known as the Brotherhood, the authors state it was a cell of Benedictine monks, confessors to the Gilbertine nuns at "The Biggin" in the same town. There is no proof that this building was ever a monastic institution, and we consider the suggestion erroneous. The plan of the building, a long room or hall over a ground story, is not that of a religious establishment, but suggests the hall of a Guild. That such institutions existed in Hitchin the parish church gives evidence in its large chapels on the north and south sides of the chancel; much of the wealth of mediæval Hitchin was derived from wool merchants attached to the staple of Calais and members of the Guilds and Fraternities connected with the church.

The book is not well produced, and there is a commercial feeling in the volume which is not in harmony with the old-world places dealt with. Of the illustrations, the best are the exterior of Hitchin Church, the court-yard of "The Biggin," Hitchin, and the magnificently-proportioned west tower of Ashwell Church. For a brief guide as much information is condensed in the publication as is possible, but it is not the last word on this quiet country district, which has had its centuries of slumber disturbed by the advent of modern Letchworth.

The Properties and Design of Reinforced Concrete: Instructions, Authorised Methods of Calculation, Experimental Results and Reports by the French Government Commissions on Reinforced Concrete. Translated and abridged by NATHANIEL MARTIN, B.Sc., A.M.Inst.C.E. (London: Constable. 1912. Pages xiv. and 119. 8s. net.)

THIS is an important contribution to the English literature of reinforced concrete. It gives, in compact form, the results of the experiments and investigations made by the Commission appointed by the French Minister of Public Works in December, 1900, and which conducted comprehensive experiments during the succeeding six years. These experiments included tests to destruction of several of the structures of the Paris Exhibition of 1900, and other tests carefully directed, as the translator points out, "not to the solution of academical minutiæ, but to the obtaining of results immediately applicable to practice." A very illuminating chapter is that in explanation of the French "instructions," a word adopted in preference to "regulations," as conveying a sense of less finality without losing the obligatory character of the latter.

There is a Preface by M. Considère (who was a member of the Commission), setting out clearly and concisely the facts established and results obtained by the Commission. Not the least important fact established was the importance of the contraction, denied by some, which occurs in concrete during both setting and hardening. The effects of shocks on the adhesion and resistance of concrete in a railway-sleeper were carefully observed, and the results are given in the present volume; there are so few recorded observations upon this point that these particulars are of especial value.

All interested in ferro-concrete, but who have not an opportunity of examining the original, will thank Mr. Martin for his careful presentment of the Report and its addenda in English.

Estimating for Reinforced Concrete Work: A Handbook for Measuring and Pricing Reinforced Concrete. By T. E. COLEMAN, Major, Staff for Royal Engineer Services. Pages x. and 143. (London: Batsford. 1912. 4s. net.)

A BOOK of this kind has been wanted for some time. There are points involved in measuring reinforced concrete work which have not yet crystallised into generally accepted methods, and this book will doubtless assist towards a desirable uniformity of practice in them. The chief difficulty usually arises in connexion with the shuttering, and upon this matter the author's views are sound and his method simple.

The volume is not only one for the student of quantity surveying, but it embodies many practical notes and a price-book. A new feature of the price-book is that the prime-cost basis adopted for the respective materials used in each class of concrete is given with the general description of the concrete, so that adjustments to suit varying conditions can be readily made.

In the introductory chapter the various ways of obtaining estimates are carefully compared, and the difficulties attending the only too prevalent method of inviting designs as well as estimates from contracting firms are indicated.

The book should find favour with architects for its clear and concise presentment of facts, and it will prove a convenient office companion as well as a useful handbook for the student.

CITY OF LONDON: NEW STREET LIGHTING.

IT is anticipated that within six months or so the new system of lighting the main streets of the City with centrally-hung lamps will be equipped and completed, and that, with the provision of a total increase of 600,000-candle-power, a yearly saving of nearly 7,000*l*. will be effected. Five years ago the Corporation nominated a deputation to inspect the systems of lighting the streets in Paris, Vienna, Berlin, Munich, Dresden, Brussels, Düsseldorf, and Cologne, where both gas and electricity are used with fairly equal favour. In Cologne, where the conditions as to the width of the streets are most similar to those that prevail in our own city, centrally-hung electrical arc and flame lamps, with lifting and lowering gear, are employed as we now see in the experimental installation in Cannon-street and Cheapside; electricity and gas combined are adopted for the open spaces and *places*, and standard incandescent gas lamps for the by-streets. In the result, the deputation were of opinion that, in view of the many obstructions in the shape of letter-boxes, bins, lamp and other posts, etc., on the pavements, the adoption of centrally-hung lamps in lieu of the standards would best meet our own requirements, whilst the bracket system would avail for the side streets. Negotiations are concluded with the gas and electricity companies, and the fresh installation will be established forthwith.

CORRESPONDENCE.

A "Thoroughly Up-to-Date Society."

SIR,—It is not my habit, nor should I wish, to enter into a correspondence in your columns with regard to your leading article of November 29 last, under the above heading, to which my attention was called before Christmas. All members of the R.I.B.A. will greatly appreciate and acknowledge both the fair-mindedness of your premises and the quite proper and reasonable conclusions you adduce therefrom.

My purpose in writing has nothing to do with any correspondence which, I am given to understand, has arisen out of your article, one which could only have been written, if you will allow me to say so, Sir, after a most exhaustive study of the two addresses, a keen insight into the real educational advantages to be derived from any system of architectural training suitable to our requirements, and a very full knowledge of the immense amount of gratuitous and self-sacrificing labour undertaken by the Royal Institute—seldom accredited with anything beyond the advancement of the interests of its members—in furtherance of the education and training of those who aspire to practise the art and profession of an architect. With this in mind, one is surprised to read in the centre column, on page 634, the following words:—"So long ago as 1887 a Conference was held on the subject, the members of which had before them the programmes which then prevailed in other countries. For the last twenty-five years it has elaborated and conducted a system of examination in architecture."

It is wholly a mistake to say that the R.I.B.A. has only during the last twenty-five years taken up the subject of education by examination. Why, Sir, it is half a century since the first examination was held by the Institute, and it is especially interesting to remember that these examinations arose, in the first place, out of the discontent of the younger men of that day who felt that merely to be Associates of the Institute of British Architects—it did not become Royal until 1866—without having proved their ability to practise by passing a qualifying professional test of some kind or another was not satisfactory.

Shortly after the time that the Institute moved into its "new premises," on the first floor at No. 9, Conduit-street—in 1859—the matter of the examination and the then called Diploma Question was referred to a Committee, of which Arthur Asphitel was Chairman and W. Wyatt Papworth, the Hon. Secretary. As a result of their deliberations the voluntary examinations were instituted, the first being held in 1863.

One hears much nowadays of the "stiffness of the exams.," but what would be said of the voluntary exams. of the sixties that lasted a fortnight, with five days in each week? As a fact, they proved almost too much physically for the candidates, and a special Committee was formed in 1870, and various alterations were made in the system, mainly in accordance with the suggestions of the late Professor Kerr. The voluntary examinations continued for twenty years, and it was not until the year 1881 that the examination for Associateship was made obligatory on all candidates.

It is interesting to note that at the end of thirty years out of some 1,580 Associates there are only about 120 who have not qualified by examination, whilst of the 836 Fellows over 25 per cent. have qualified in a similar manner for that distinction.

The increase in the membership of the Royal Institute will be gathered from the following figures taken from the R.I.B.A. calendars and other publications:—

1834-5.	Fellows ...	50		Foundel 1834
	Associates	30	80	
1863-1.	Fellows ...	208		Voluntary Exams.
	Associates	130	338	
1869-1.	Fellows ...	365		Obligatory Exams.
	Associates	365	730	
1912-13.	Fellows ...	836		
	Associates	1,578		
			2,414	Members (Corporate)
			2,119	Licentiates
			1,343	Members of allied societies (other than the above)
			5,876	

Speaking in round numbers, one may say that the R.I.B.A. represents 6,000 architects. The above figures do not, of course, include Hon. Fellows, Hon. Associates, Hon. Corresponding Members, retired Members, students or officials of the R.I.B.A. If these were included it would add about another thousand to the above total. I mention this because it is only by the inclusion of such classes in the numbers of the "Members" of the Society of Architects—as well as the Fellows and Associates and Licentiates of the R.I.B.A. belonging to both bodies—that the late President of the Society was able to say the total membership was nearly 1,200. As a fact, the actual Members of the Society of Architects would be little more than 750 if the Members and Licentiates of the R.I.B.A. were deducted, and that number includes about 100 members abroad. The question of qualification is, of course, of much more importance than numbers, but this it is not my purpose to discuss.

To my mind, the growth of the influence and power of the Royal Institute of British Architects, as shown in the advancement of the art and the welfare of the profession at large, can mainly be attributed to the wisdom and forethought by which, whilst keeping open its doors to the senior practitioners (some think almost too long) it has practically for half a century only accepted into its junior ranks men who have passed some qualifying test. From the beginning of this year and onwards any candidate, before being allowed to sit for the qualifying examination for Associateship, will have to satisfy the Board of Education that he has passed through an approved course of study and has received a proper architectural education.

I fear, Sir, I have trespassed greatly upon your space, but, in conclusion, will you permit me to say that, after perusal of the article in question, it is apparent that a better appreciation of the traditions and status of the R.I.B.A. exists in the editorial sanctum of the *Builder* than was the case in the early part of last year, and I for one shall again become a subscriber!

HERBERT SHEPHERD, A.R.I.B.A.

SIR,—Mr. H. Guicharde Todd states in his letter in your issue of January 3 that the Society of Architects "is now responsible for the professional interests of over a thousand members." According to the published figures, he is quite wrong. The *Year-Book* for 1912 states that there are only 878 members. I believe over 100 are Fellows, Associates, or Licentiates of the R.I.B.A., and that at least 100 members of the Society do not reside in England, consequently only about 650 men have any interests that would not be cared for by the R.I.B.A.

One constantly sees the membership of the Society grossly exaggerated; it is a pity, and does the Society no good; neither does gratuitous advertisement in the secular Press, that does not know the difference between the Architectural Association, the Society of Architects, and the Royal Institute of British Architects, but your readers do.

SUBSCRIBER.

SIR,—I would beg to be allowed to make one or two brief comments on the interesting correspondence and particulars of the atelier scheme for the training of architects which my letter in your issue of December 20 appears to have evoked.

As Mr. McArthur Butler courteously surmises, I necessarily wrote without any knowledge of the origin or of the present development of this movement. Notwithstanding my enlightenment, I am still an unbeliever, and, although I appreciate to the full the superior advantages which the French system of training offers, and its results, I hold strongly that it is not in accord with the English genius, and if adopted here will be to the detriment of our vernacular architecture.

In these French schools no encouragement is given to any but classical tradition in design, and we see the evil effect of this scholastic intolerance on the vast amount of work in France which is the main expression of the domestic educational and religious character of the nation and which constitutes the life-work of the vast majority of architects. Why should a nation altogether abandon the study of its indigenous art evolved by and therefore best suited to its national character and environment—an art in which every attribute of greatness is as fully expressed as in the Parthenon? Who would not far rather see England covered with beautiful Gothic churches, houses traditionally English in their quiet beauty and harmony with their surroundings rather than the pretentious type of modern country house and poor Renaissance churches everywhere to be seen throughout the French provinces? Which can only be attributed to the exclusively academic teaching affected in the national School of Architecture. If this is to be the result of the establishment of the French system, of the "community of ideas and generally accepted standard of criticism," I can only say may Heaven preserve us from its success!

True, our English system of training has not hitherto been carried far enough to enable us to compete favourably in monumental schemes with graduates of the Ecole des Beaux-Arts; but that it has produced domestic, scholastic, and ecclesiastical architecture which the whole civilised world is admiring and studying is a fact beyond dispute.

The necessary advanced studies in civil and monumental design are, however, now being provided in the schools of the Architectural Association, the Royal Academy, in the School of Rome, and in the schools of architecture of several Universities. Thus "logical and systematic" courses of training, from elementary to advanced, have been developed on English lines by the combined experience and voluntary effort of our best architects, and there is no reason to fear that the practical result of these advanced courses will not be as satisfactory as the more elementary studies have been proved to be. Moreover, the length of time most students can devote to their training is too short to adopt both systems, English and French. They must make a choice. And it is not far to Paris if any wish to supplement their English education.

Our schools must insist on a progressive training which enables the architect to design a simple cottage or village hall with enthusiasm and delight. This spirit has hitherto characterised our English schools and is perfectly consistent with higher studies to fit those who can afford the time and means for designing on a monumental scale. A large majority of our students will not be able to take this more advanced course, but, seeing that the same general principles of design apply to all classes of practice, the men who have devoted themselves to the mastering of less ambitious studies will do their special work all the better, and the more able and advanced men will, of course, generally carry off the plums of the profession.

As a personal matter, and therefore one of little consequence, may I correct Mr. Butler by stating that my resignation, many years ago, of the Society's membership was based on no other grounds than the abandonment by the Society of the principle which had been laid down that the R.I.B.A. examination should be the only recognised standard of training. Surely the standard of qualification required by the Society for membership cannot be said to be equal to that of the Institute, and therefore the former's early and primary principle has been abandoned. The aim of my closing remarks was to suggest, as I do with great deference, that the R.I.B.A., having taken up the Society's principal work, the Society's popularity and power will be in proportion to its support of the Institute in its efforts to obtain the Act in question.

W. H. SETH-SMITH, F.R.I.B.A.

Is a Draughtsman Too Old at Fifty?

SIR,—"Stoic's" letter, "Is a draughtsman too old at fifty?" in the *Builder* of December 28, and your "Note," "The Architect's Age Limit," in your last issue (p. 4), present a problem that will in the near future confront almost all the draughtsmen in H.M. Office of Works now under thirty if the present regulations are not modified. Under these new rules these assistants on reaching thirty-five will have to leave unless there are vacancies in the newly-formed class of established architectural assistants. As the class is limited to thirty-three, and all the posts are or will shortly be filled, and as there will also be a comparatively long waiting list of men now over thirty, it is practically certain that no vacancies will occur for a great number of years for the men under thirty. As "Stoic" says, "'Not over thirty-five' is no fallacy," but it is a new reading of the phrase for men to be sent adrift at that age while there is work to be done, simply on account of a rule made some years previously. "Not over thirty-five" is adopted by private architects as the limit for engaging assistants, but it has been left to the departmental mind

to define this as the limit for retaining men in their service. After having been engaged in special work outside the range of private practice for periods obviously over at least five years, these gentlemen are to be met with "not over thirty-five" from the Government which may still require their services and from the private architect from whom they will have to seek employment which they will probably not find. A SYMPATHISER.

Pugin and Ruskin.

SIR,—I have read Mr. Crace's letter in the *Builder* with deep interest. Those who know Ferrey's "Life of Pugin" will recall Ruskin's bitter remarks about him in Chapter XIII. and regret them. They, at any rate, clearly show that Pugin would not and could not pose as any "lieutenant" of his, and all lovers of fair play, however they admire Ruskin, cannot fail to regret the lack of all kindliness he displays in his criticisms. It speaks greatly in favour of Sir Charles Barry's wisdom in that he chose Pugin to aid him, certainly *not* as a mere "paid clerk," but as the best man of his own or perhaps of any day, and as the fittest he could find. E. SWINFEN HARRIS.

Architects' Names Ignored by the Press.

SIR,—On more than one occasion you have called attention to the fact that a new building is often described at great length in the Press and no reference is made to the architect.

Have you seen the December number of the *Windsor Magazine?* There is an article on the new Royal Academy of Music. It is illustrated with nine photographs of the building and one of the Building Committee. The fact that a certain eminent architect was responsible for the structure was evidently considered of such trifling importance that he is not mentioned!

F.R.I.B.A.

Hoardings and the Law.

SIR,—May I venture somewhat to supplement the article which appeared under the above heading in your issue of January 3? The article commences by stating that one of the necessary incidents to a building contract of any magnitude is the erection of a hoarding; that, of course, means a hoarding erected in connexion with building operations; but the writer chiefly addresses himself to advertisement hoardings, as to which different considerations arise. With regard to the case quoted at the conclusion of the article, decided in 1842, it may be a question whether the licence of the local authority much affects the right of action, since the Court of Appeal in the very recent case of Lingcé *v.* Christchurch Corporation, which was noted in the *Builder* July 12 last, pronounced some very important dicta on the law governing this question. In that case the actual point decided was that a temporary obstruction to premises causing considerable inconvenience and loss of business to the occupier may constitute "damage" in respect of which he is entitled to compensation under sect. 308 of the Public Health Act; but in considering this case the Court of Appeal had to decide whether if the acts in question had been done by a private individual apart from any statutory authority there would be any cause of action, and the case of Herring *v.* Metropolitan Board of Works, decided in 1867, had also to be considered. In the course of the judgment of Lord Justice Vaughan Williams the law as to hoardings is very clearly stated in connexion with Herring's case:—"So for the purpose of building, rebuilding, or repairing houses abutting on the public way in populous places hoardings are frequently erected enclosing a part of the way. These are the sort of things that it is recognised people may do in respect of the highway which, although they physically obstruct, do not constitute an obstruction of the King's highway either for the purpose of indictment or for the purpose of civil action." The obstruction, however, must be for a proper purpose, reasonable in extent, and reasonable as to duration.

Again, on the subject of advertisement hoardings there is a much more recent case than those cited in the article, viz., Nussey *v.* Provincial Bill Posting Company and Eddison, noted the *Builder*, April 10, 1909. In that case there was a covenant in connexion with a residential estate not to erect any "building for the carrying on of any noisome, offensive, or dangerous trade or calling." A lessee from one of the purchasers erected a hoarding 156 ft. long by 15 ft. high for advertising purposes. The majority of the Court of Appeal held this to be a "building" erected for the purpose of carrying on a trade offensive to the eye.

LEX

[THE LONDON BUILDING ACT.—We have received a letter from "G. T.," in reference to our article on the London Building Act in our last issue, but we are unable to print the letter unless "G. T." will send his full name and address, not, of course, for publication, but for our own information.]

[CORRECTION.—In reference to the letter on "St. Paul's Cathedral and Proposed St. Paul's Bridge," which appeared in our last issue, a mistake was made in the name of the writer. It should have been H. H. B. Sang, not Lang.]

INTERCOMMUNICATION COLUMN.

Mistakes in Tendering.

SIR,—Would you kindly give us your opinion on the following points?

1. Is a builder justified in withdrawing his tender when he finds he has made a mistake in estimating, bearing in mind that the right not to accept the lowest or any tender has been reserved? Would you consider it an unprincipled act for a builder to do so?

2. Are the Council justified in keeping the tenders private with a view of retaining the lowest should they think he has made a mistake, or on account of his tender being much lower than the one above? CONTRACTOR.

[**** The points raised by our correspondent are of such general interest and importance that we feel they merit a full and detailed answer. In the first place, it may be said that a tender may always be withdrawn at any time before acceptance, even though the person making the offer (*i.e.*, the building owner or a Council, as the case may be) promises to keep it open for a given time (Bristol and Cardiff Company *v.* Maggs, 1890, 44 Ch. D. 616), unless, of course, there is some consideration for the promise not to withdraw the offer before the specified time has elapsed. In Routledge *v.* Grant (1828) 4 Bingham, 653, Chief Justice Best, referring to authorities quoted in the argument said, "These cases have established the principle that till both parties are agreed either has a right to be off." If, however, the tender be made under seal, it would seem that it can never be withdrawn. A tender made by a contractor and an acceptance by the Council or other employer, or by the architect or engineer as their agent, will constitute in law a binding contract when the acceptance is unqualified and no fresh terms are contemplated, and, indeed, a tender and acceptance may amount to a contract although the acceptance refers to a formal contract to be drawn up afterwards (see Lewis *v.* Brass, 1878, 3 Q. B. D. 667). When once a tender has been definitely accepted, therefore, there is a binding contract, and the contractor can in no circumstances withdraw (see Byrne *v.* Van Tienhoven, 1880, 5 C. P. D. 344, which is a leading case on this point, and also the Dartford Union Guardians *v.* Trickett, 1889, 54 L. T. 754). So that in answer to the first question raised by our correspondent we think that a builder is certainly justified in withdrawing his tender if he finds he has made a mistake in estimating, unless his tender has already been accepted, in which case he cannot withdraw, because he is already legally bound. Every contractor should be very careful in the preparation of his tender, or he will not be allowed to withdraw or to rectify omissions or miscalculations, even though he has made a mistake in his estimate. A Scotch case is very much in point with regard to this. In the Seaton Brick Company *v.* Mitchell (1900, 2 F., 5th Series, 550) the contractor, Mitchell, by letter offered to execute certain carpentry work according to specifications for the lump sum of 859*l.*, and the offer was accepted. He afterwards found that his son, who made the offer for him, had in his private calculation gone over the schedule of measurements and quantities and marked down the prices of each item, but that in making the summation of the whole items he had accidentally omitted a number of items, with the result that the offer was 326*l.* less than it should have been. He accordingly refused to carry out the work, and the Seaton Brick Company thereupon had the work done by the contractor who had made the next lowest tender, namely, for 1 085*l.*, and then they brought an action for the difference between Mitchell's tender and the price they had had to pay. Mitchell pleaded that in consequence of his son's error he was entitled to resile—*i.e.*, to rescind the contract; but it was held that he was not entitled to resile, and that he was liable in damages for his breach of contract, the judge remarking that when the defender's (*i.e.*, Mitchell's) offer was made and accepted the proprietor's architect had nothing before him to indicate that any mistake had been made on the part of the contractor, and that the law is that a party who enters into a contract under a mistake must be held to it unless the mistake was induced by the other party or was brought under the other party's notice before acceptance. See also in this connexion Kimberley *v.* Dick (1872) L. R. 13 Eq., p. 1. From the decisions in these cases it is clear that an architect who on behalf of his employers has once accepted a tender without notice that there is any sort of mistake with regard to the figures and estimates contained in it can, if he chooses, hold a contractor to his tender, even though it subsequently turns out that the contractor had in fact made some error in his calculations, and thereby made an offer which he would not otherwise have made. Furthermore, it would seem that an offer is no less binding because it is in the form of an estimate, and even headed with the word "Estimate." In the case of Croshaw *v.* Pritchard (1899, 16, the *Times* L. R 45) the facts were as follows:—The plaintiff's architect wrote a letter inviting a tender, and a contractor replied, "Estimate. Our estimate to carry out the sundry alterations to the above premises according to the drawings and specification amounts to the sum of 1,230*l.*" On the next day the plaintiff wrote that he accepted the contractor's "offer to execute for the sum of 1,230*l.*" the work in question. At a later date the defendant contractors wrote that they had made an error in their figures, and that under the circumstances they must withdraw their estimate. The plaintiff then had the work done by another builder at a price higher than that given by the defendant, and later brought the action to recover the difference in price as damages for breach of contract. The question, of course, was whether there ever had been a complete contract binding on the contractors. Their contention was that the word "estimate" was advisedly used by them in order to avoid a final and binding agreement, and evidence was actually given by several builders to show that this distinction is always observed in the trade. It was held, however, by Mr. Justice Bigham that the defendant's letter headed "Estimate" was an offer to do the work at the price named, and the judge said, "It had been suggested that there was some custom or well-known understanding that a letter in this form was not to be treated as an offer. There was no such custom, and if there was it was contrary to law." The defendants had to abide by the consequences of their mistake, and judgment was given for the plaintiff, with costs. In answer to the second question in our correspondent's letter, it seems to us that a Council are perfectly justified in keeping tenders private if they so desire. An invitation for tenders is merely an offer to negotiate: it is, in fact, an offer to receive offers, which may or may not be accepted, and does not in any sense imply a promise to accept any tender at all. Employers do not by inviting tenders bind themselves to accept the lowest or any tender, whether they make an announcement to that effect or not. They have a free hand to accept or not, as they please.—ED.]

Prospects in Toronto, Canada.

SIR,—I should esteem it a great favour if you would kindly let me know, through the columns of your valuable paper or otherwise, the prospects of a young builder's estimator and quantity surveyor in Toronto, Canada. I have had fifteen years' experience in the offices of London and country builders and contractors, measuring up, superintending, etc., and have estimated and obtained jobs up to 10,000*l.* Also have a first-class knowledge of speculating building. I am a good draughtsman, and have obtained several first-class certificates in building construction, architecture, builders' quantities, etc. Married.

J. BISSELL.

[**** Toronto is a rapidly growing city, and we understand that its building activity is still on the increase. Our correspondent's prospects should be good, provided he is adaptable, as the conditions naturally differ from those in an old and fully settled country. Time is of the essence of the contract in most cases, and estimates are not prepared quite in the same way or with quite the same attention to detail as here. Quantity surveyors, as the name is understood here, not existing in Canada, more scope seems afforded for builders' estimators, though we have no recent information as to the present demand for them. The rapid expansion of the country, however, affords a better chance of ultimate independence and offers opportunities in other directions to men of energy and initiative. The will and the ability to adapt oneself to new conditions is an essential to success.—ED.]

ILLUSTRATIONS.

New Golf Club House, Ascot.

THE situation of the new Golf Club House is in the Swinley Forest, at a distance of from two to three miles from Ascot Station. The house stands in a clearing of the fir-trees, and a private roadway leads into the enclosed courtyard to the main entrance. The buildings grouped around the courtyard provide accommodation for chauffeurs, garages, professionals' workshops, and showroom, together with a caddies' room. A lobby connects the front entrance with the club-room, which represents the hub of the whole building, and from which the ladies' room opens, with its separate lavatory accommodation and lockers. An opposite door leads into the men's locker-room, with its lavatory accommodation and drying-room for wet clothes. Casement doors open from the club-room on to the verandah which overlooks the golf course, and from which the Secretary's office is entered.

An oak staircase in the club-room provides access to the large first-floor dining-room and smoking-room, the French casements of which open on to a large balcony over the verandah, so that in suitable weather the members can take their meals *al fresco*. The dining-room has a barrel-vaulted ceiling, with fibrous plaster enrichments treated in the old manner, and with an oak glazed screen dividing the smoking-room from the dining-room. The fireplaces in the public rooms are formed in red brick interspersed with courses of tiles, with open dog-grates, the woodwork generally being in oak. Kitchen accommodation sufficiently adequate to cope with the dining-room demands is provided, together with sleeping accommodation for the staff.

The elevations are treated in grey brickwork, with some oak half-timber work in the upper part filled in with herring-bone brick nogging, the roof being covered with silver-grey country tiles.

The materials all blend with a pleasing and harmonious effect, and give the whole structure the appearance of having grown up in its own surroundings.

The Swinley Forest Golf Club are to be congratulated upon having acquired such comfortable premises, which were designed by Mr. Stanley Hamp, A.R.I.B.A., of Messrs. Collcutt & Hamp, Bloomsbury-square, London, W.C., the building having been erected by Mr. William Watson, builder and contractor, Ascot, Berks.

House in Wild Hatch, Hampstead Garden Suburb.

THIS house was built on a somewhat narrow plot with a motor-house facing the road, which had to be under the same roof. It was necessary, in order to get as much of the garden open to the south, to keep the house close to the north boundary.

The annexe off the dining-room was specially placed to get the view over Hampstead Heath and to catch the south and west sun.

There are two additional bedrooms in the roof. The external walls on the ground floor are built 14 in. thick with 11-in. cavity walls above, faced with stock bricks, and distempered a cream colour; the roof is covered with red hand-made tiles, and the gable ends covered with elm boarding left rough.

The interior has been kept simple in detail, the woodwork (except in parlour, which is painted white) has been stained with silver-grey "Matsine." A heating system is provided with radiators in all the rooms.

The architect is Mr. T. Millwood Wilson, and the builders Messrs. William Moss & Sons, Ltd., of Loughborough.

No. 15, Stratford-place, W.

OUR Plate shows one of the rooms at No. 15, Stratford-place, where alterations and decorations have been designed by Mr Charles Gascoyne for Mrs. Widdicombe Lee. The work was carried out by Messrs. Ropley, of Duke-street, W.

Library, Gledhow Hall, Leeds.

THIS room is panelled entirely in oak. The work was carried out by Messrs. J. P. White & Son, Ltd., of Bedford, to the designs of the architect, Mr. Sydney D. Kitson, F.R.I.B.A.

The Bank of Adelaide, Leadenhall-street.

THE fireplace and panelling are in the new building for the Bank of Adelaide, Leadenhall-street, designed by Mr. Lionel U. Grace, F.R.I.B.A. The building is described in the article beginning on p. 49.

MEETINGS.

FRIDAY, JANUARY 10.

The Leicester and Leicestershire Society of Architects.—Presidential address. 8 p.m.

SATURDAY, JANUARY 11.

The Architectural Association.—Visit to the house of the late Sir Lawrence Alma Tadema. Meet at 2.30 p.m.

MONDAY, JANUARY 13.

The Architectural Association.—Professor W. R. Colton on "Ancient Influences and Modern Factors in Art." 8 p.m.

University of London (Victoria and Albert Museum).—Mr. Banister Fletcher on "Mediæval Architecture: Interiors, Exteriors, Arcades, Doorways, Windows." 5 p.m.

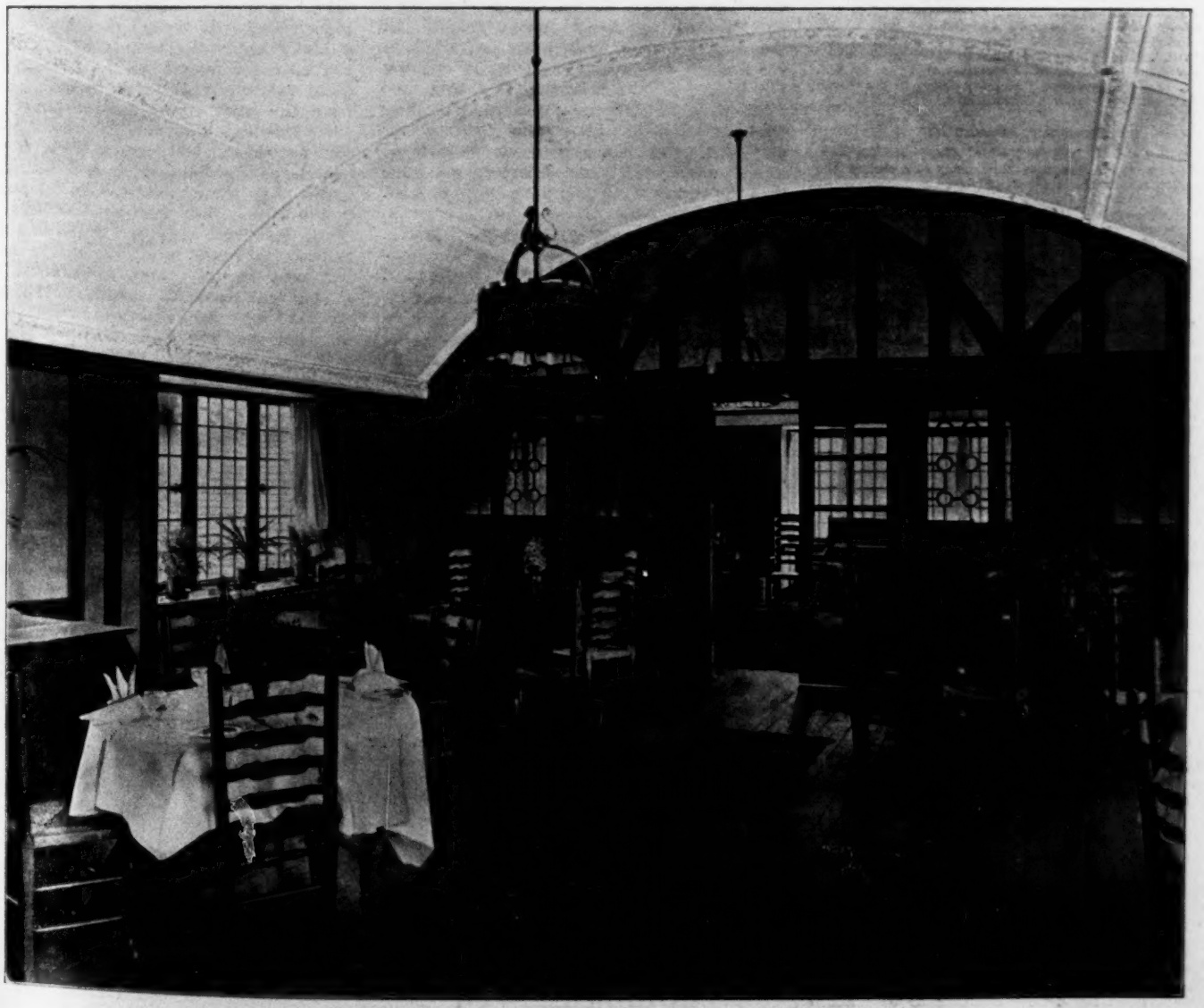
The Incorporated Clerks of Works' Association (Carpenters' Hall, London-wall).—Paper by Mr. Charles A. Line on "Modern Paint Oils, Pigments, and Driers, with Special Reference to Lead Poisoning and the Replacement of White Lead by Hydrated Zinc Oxide and Lithophane Paints." 8 p.m.

The Surveyors' Institution.—Discussion on Mr. Konstam's paper on "The Evidence before the Departmental Committee on Imperial and Local Taxation." 8 p.m.

The Bristol Society of Architects.—Dr. A. C. Fryer on "A Pilgrimage to St. David's Cathedral." 8 p.m.

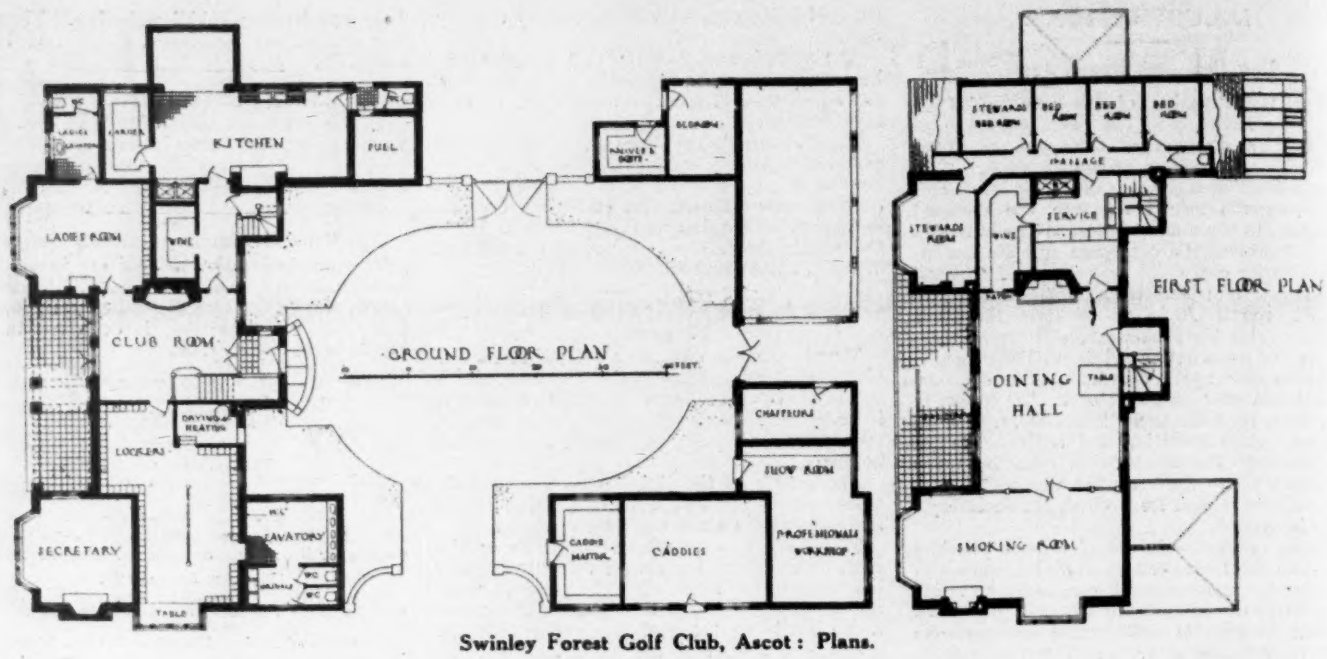
The Institute of Sanitary Engineers.—Mr. J. O. Neumann on "The Collection of House and Trade Refuse." 8 p.m.

The Institution of Electrical Engineers.—8. p.m.



Swinley Forest Golf Club, Ascot: Dining Hall.

Mr. Stanley Hamp, A.R.I.B.A. (of Messrs. Collcutt & Hamp), Architect.



Swinley Forest Golf Club, Ascot: Plans.

Mr. Stanley Hamp, A.R.I.B.A., Architect.

TUESDAY, JANUARY 14.

University of London (British Museum).—Mr. Kaines Smith, M.A., on "The Greek State and Nation: the Expression of an Ideal." Lectures on "Greek Art and National Life." 4.30 p.m.

The Institution of Civil Engineers.—Capt. C. E. Pym Sankey on "Bridging Operations Conducted under Military Conditions." 8 p.m.

The Illuminating Engineering Society (at the Royal Society of Arts).—Mr. C. Hoddle on "Acetylene Lighting," and Mr. E. Scott Snell on "Petrol Air-Gas Lighting." 8 p.m.

WEDNESDAY, JANUARY 15.

Carpenters' Hall, London-wall (Lectures on Arts connected with Building).—Mr. Herbert Batsford on "Craftsmanship in London as I Have Seen It." 7.45 p.m.

Edinburgh Architectural Association.—Mr. A. S. Jennings on "Recent Progress in House Paints and Painting, with Special Reference to Hygienic Paints."

Northern Architectural Association.—Paper by Mr. A. B. Plummer, entitled "Holiday Notes in the North of France," with lantern illustrations. 7.30 p.m.

THURSDAY, JANUARY 16.

The Society of Architects.—Mr. Herbert Freyberg, F.S.I., on "The Influence of Sanitary Science on the Comfort of Country Homes." 8 p.m.

University of London (Victoria and Albert Museum).—Mr. Kaines Smith, M.A., on "The Social System and its Effect on Decoration." 3.30 p.m.

University of London (British Museum).—Mr. Banister Fletcher on "Roman Architecture: Circular and Polygonal Temples, Basilicas." 4.30 p.m.

FRIDAY, JANUARY 17.

Architectural Association.—Members' evening and exhibition of drawings by the late R. Norman Shaw. 8 p.m.

Leicester and Leicestershire Society of Architects.—Rev. J. Wallace Watts on "Some Ancient Leicestershire Churches." Lantern illustrations. 8 p.m.

The Institution of Mechanical Engineers.—8 p.m.

Glasgow Technical College Architectural Craftsmen's Society.—Mr. A. F. Watson on "Heating and Ventilation." 7.45 p.m.

Westminster Technical Institute.—Mr. F. C. T. Tudsbery on "The Principles of Industrial Contract Law"—I. 7.30 p.m.

SATURDAY, JANUARY 18.

The Builders' Foremen's Association.—Nineteenth annual dinner, Holborn Restaurant. 6.30 p.m.

COMPETITION NEWS.

A list of current Competitions is printed on page 63.

Municipal Buildings, Dublin.

The time for preparing designs for the new Municipal Buildings, Dublin, has been extended to February 8. Mr. Albert E. Murray, F.R.I.B.A., is the assessor.

Public School, Plymouth.

Mr. E. Guy Dawber, F.R.I.B.A., has been appointed assessor in this competition, conditions of which will be issued in due course.

Manchester University, Faculty of Arts.

Messrs. Thomas Worthington & Son, Manchester, have been successful in the limited competition for a new building to cost about 30,000*l.*, in connexion with the Faculty of Arts, Manchester University. Professor C. H. Reilly, F.R.I.B.A., was the assessor.

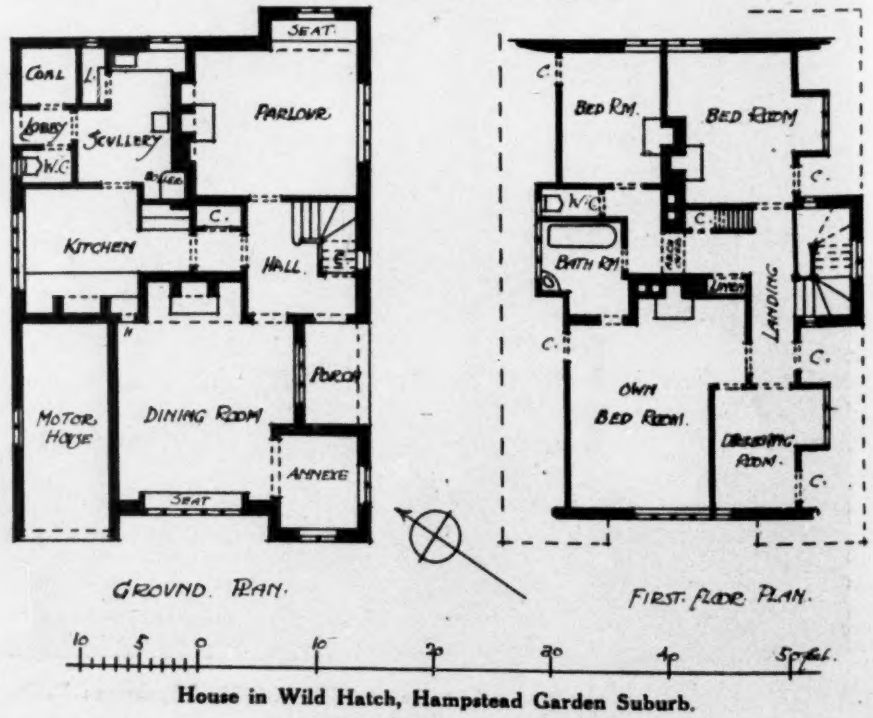
FIFTY YEARS AGO.

From the *Builder* of January 10, 1863.

The Metropolitan (Underground) Railway.

WHEN the project of a railway passing in a tunnel along a line of London thoroughfare, and to serve London traffic, was first distinctly put forward, there were many who doubted of its accomplishment. . . Should the working of the traffic of the Metropolitan Railway prove as successful as the engineering construction appears to be, the example may be followed in many towns, despite all the apprehensions that have prevailed in the present case from the delay in opening the line. . . . Believing that this new route may do something towards providing many classes of Londoners with better dwellings, and realising other objects in which we have taken interest, we hope that the undertaking may have every success.

*** When we read, also, that the "Metropolitan" stations are remarkable for their "disposition of plan" and "clever construction," and that "the arrangements for lighting are excellent," Gower-street Station being particularly selected in evidence of these features, there is something almost pathetic about the parental pride and anticipation directed towards this young hopeful, whose conduct later left so much to be desired. Yet this railway was the pioneer of local systems of mechanical transit that are revolutionising the conditions of city life everywhere. That the ground could be tunnelled beneath the network of pipes and sewers that raised such difficulties was not contemplated. The City and South London Railway, opened for traffic in 1890, was the first "Tube" railway in the world. This was followed by the "Waterloo and City" and the "Central London." But such adventures, though they have realised so many possibilities, have failed to reach one, the consequences of which might, and in some quarters it was thought would, transform the great trunk lines, by linking up their terminals into one vast clearing-house for passengers, and reduce such imperial centres as Paddington, Euston, and King's Cross to the condition of dependent monarchies. But towards this ideal the Great Northern and City is the only Tube railway through which ordinary railway carriages could pass. Moreover, the magnificent terminals recently, or now being erected on the American railways, are auguries that the Doric portico at Euston will not be shorn of its dignity and significance.—ED.



House in Wild Hatch, Hampstead Garden Suburb.

Mr. T. M. Wilson, Architect.

Sprague & Co., Ltd., Printers, 69 & 70, Dean St., London, W.

SWINLEY FOREST GOLF CLUB HOUSE, ASCOT: FRONT ELEVATION.—Mr. Stanley Hamp, A.R.I.B.A. (of Messrs. Collcutt & Hamp), Architect.

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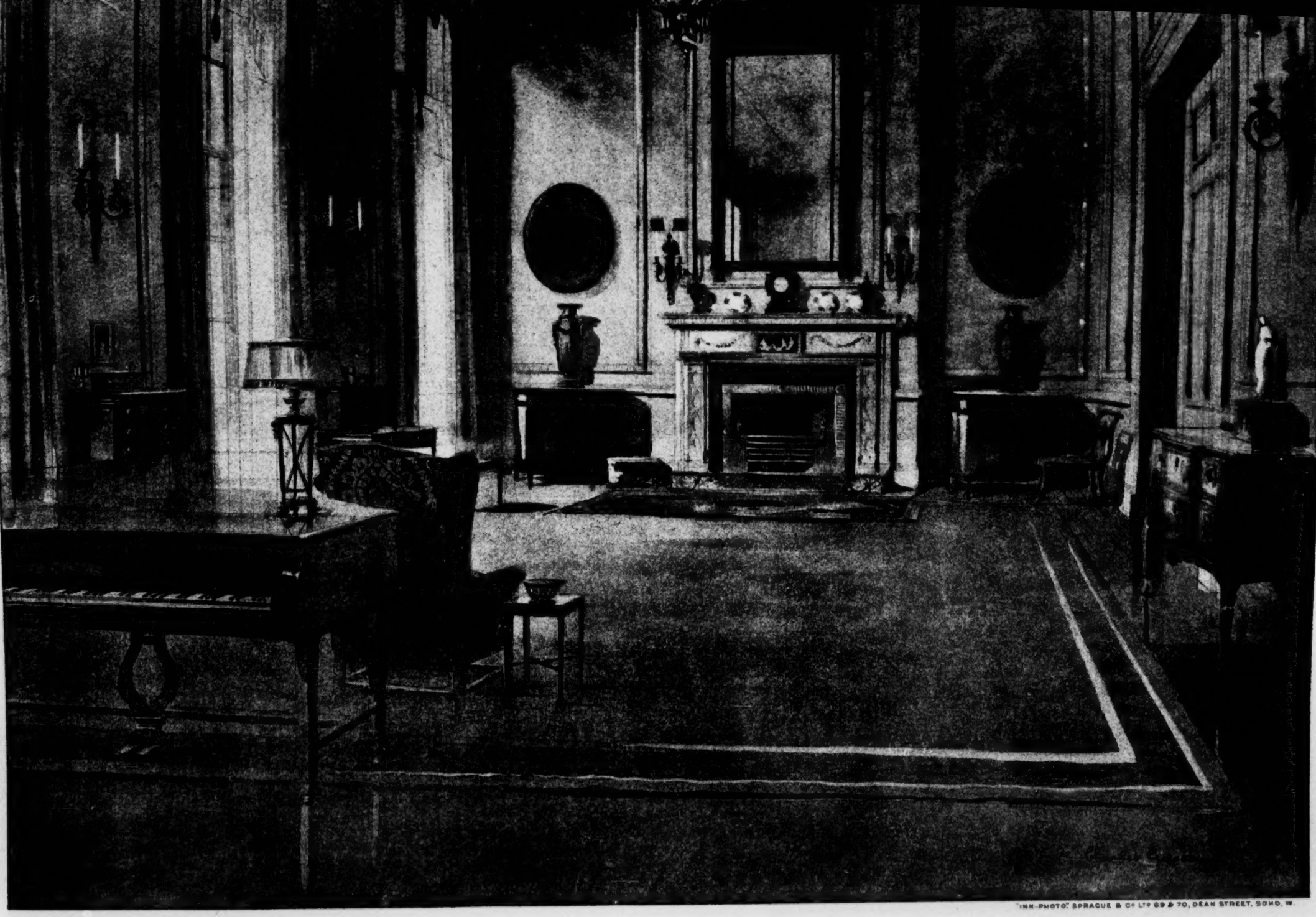
HOUSE IN WILD HATCH, HAMPSTEAD GARDEN SUBURB, N.W.—Mr. T. M. Wilson, Architect.



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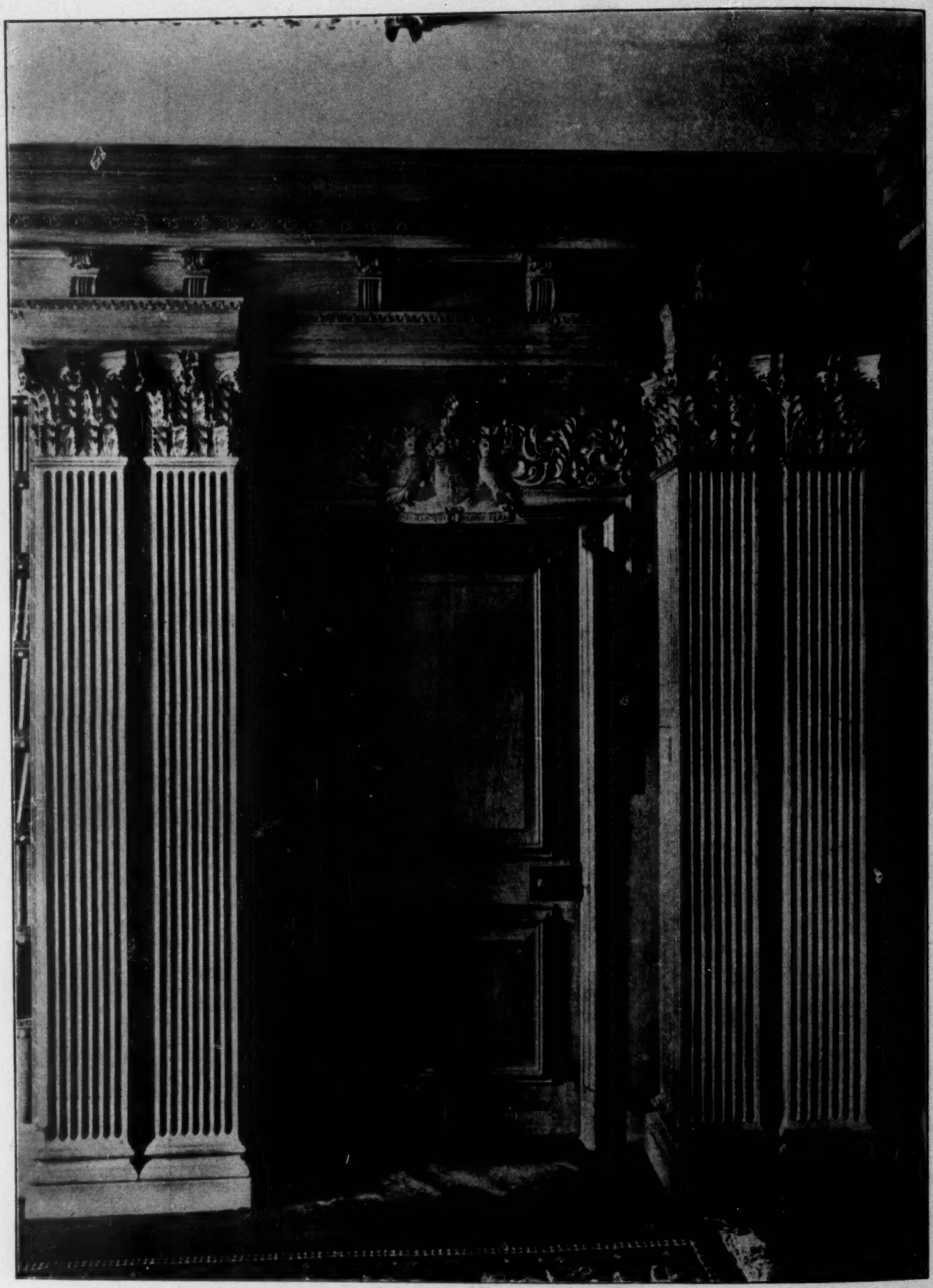
15, STRATFORD PLACE, W.—By Mr. Charles Gascoyne.



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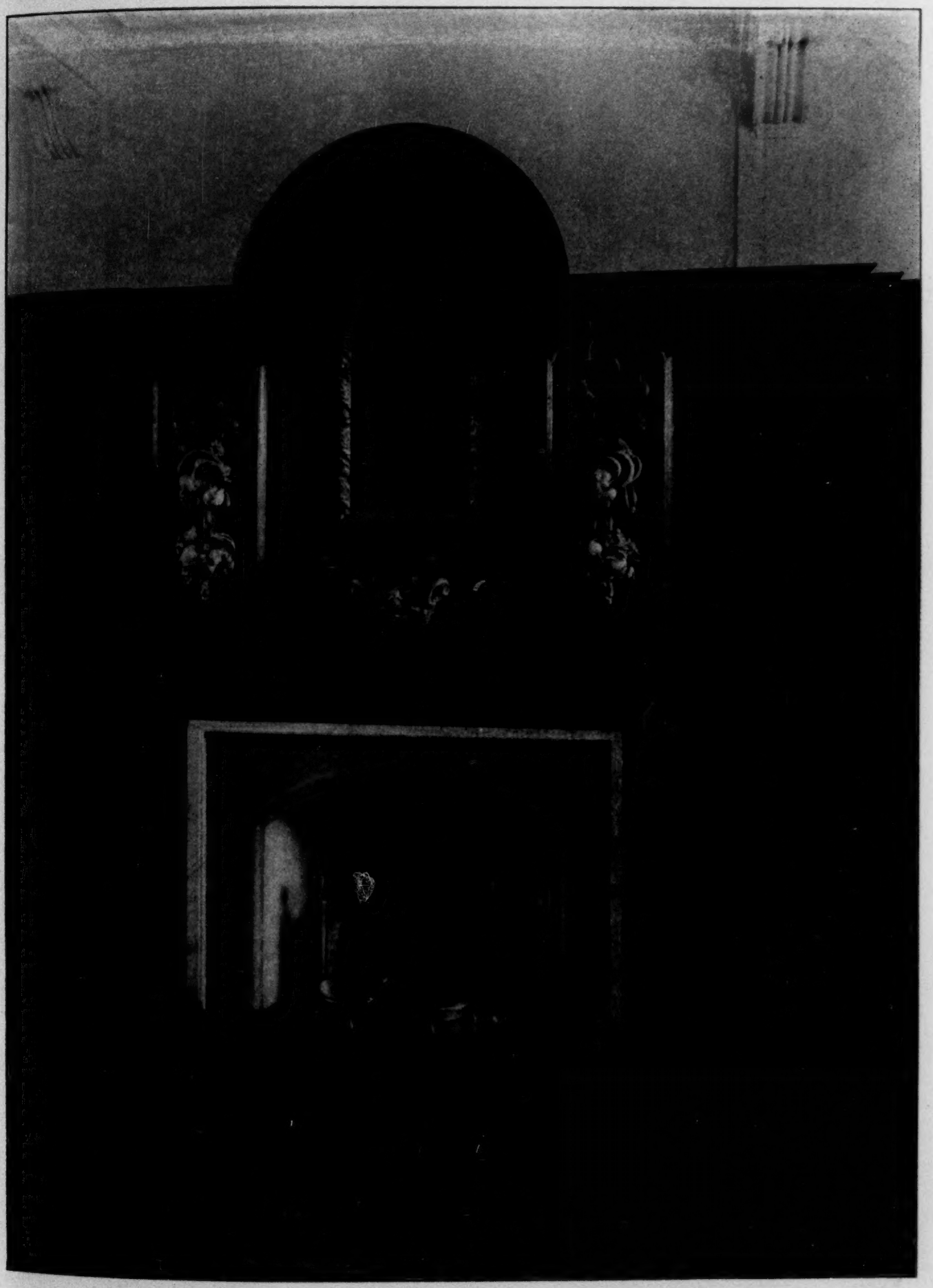
DOORWAY TO LIBRARY.

GLEDHOW HALL, LEEDS.—Mr. Sydney D. Kitson, F.R.I.B.A., Architect.



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BOARD ROOM FIREPLACE.

THE BANK OF ADELAIDE, LEADENHALL STREET, E.C.—Mr. Lionel U. Grace, F.R.I.B.A., Architect.

JANUARY

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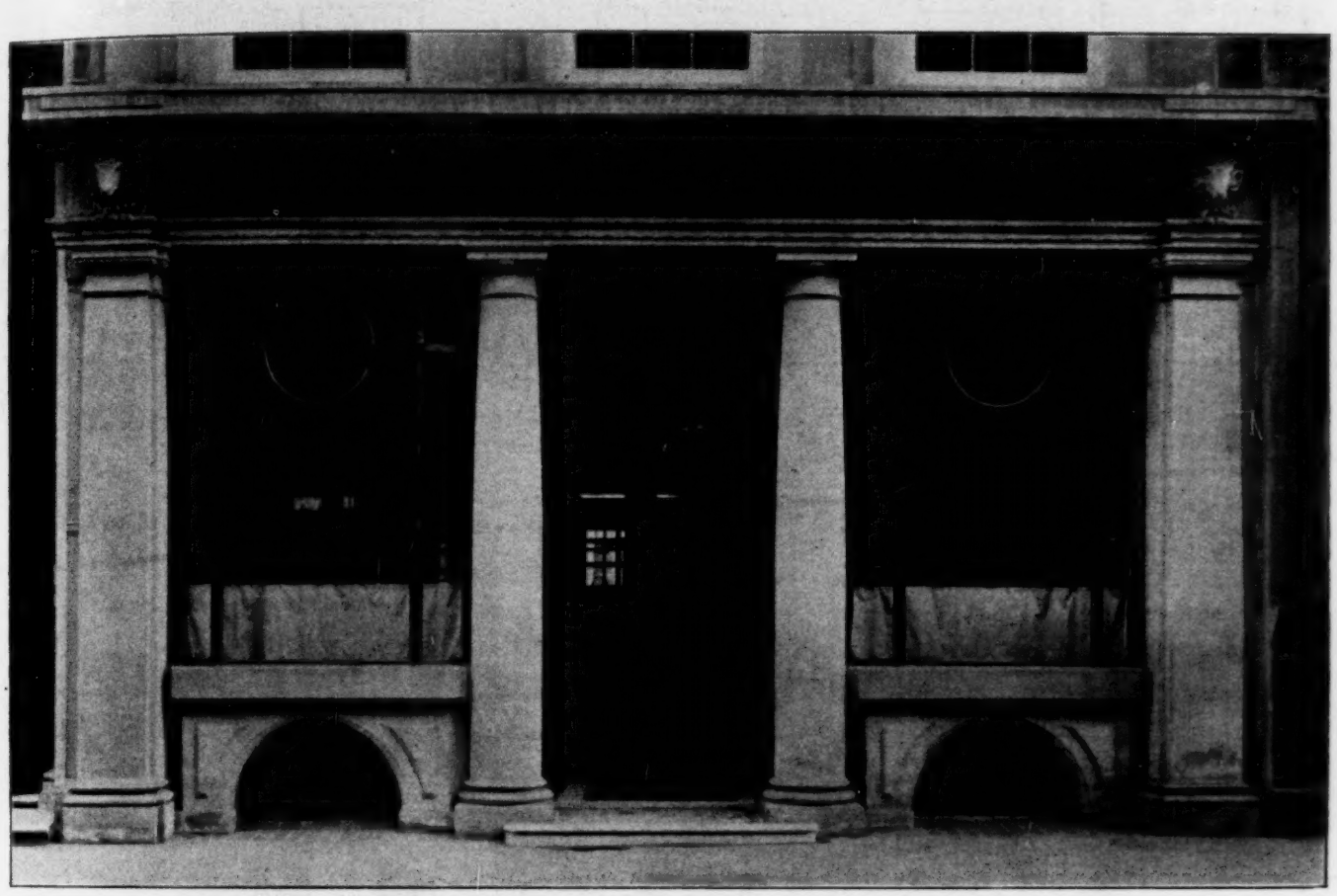


The Bank of Adelaide: Detail of Front.

Mr. Lionel U. Grace, F.R.I.B.A., Architect.

NEW PREMISES FOR THE BANK OF ADELAIDE, No. 11, LEADENHALL-STREET, LONDON, E.C.

THIS building has been erected upon the site of the old premises occupied by the Bank of Adelaide since 1880. The building now pulled down was found to be too decayed to serve any useful purpose, and in course of demolition a chalk wall of very early origin had to be removed.

It might be of interest to mention that the basement rear wall of the old premises at one time formed part of a vault in which the "Press Gang" kept their men until such time as it became convenient to send them into the Port of London.

The original gate, now fastened up, can still be seen in the railings of the Old East India House adjoining.

The old premises were vacated on January 15, 1912, and the new premises, as now seen, opened for business on September 14 last, the rebuilding having occupied seven months, for which the greatest credit is due to the contractors, Messrs. Trollope & Sons and Colls & Sons, Ltd.

Great fears of delay were anticipated in consequence of the strikes which occurred during this summer, but so expeditiously had steelwork and building material been prepared, including stonework for the front of the building, that the strikers' influence was only seriously felt for a week after the men in transport and other trades had returned to work, when the contractors found themselves worked out of material on the site.

The new premises comprise four floors, the fourth being occupied by the caretaker. The third floor consists of one large room about 45 ft. by 28 ft., to be used for storage and clerks, etc. The second floor consists of two large front and back rooms, used respectively as a visitors' and directors' private room. Lavatory accommodation has been provided throughout upon all floors.

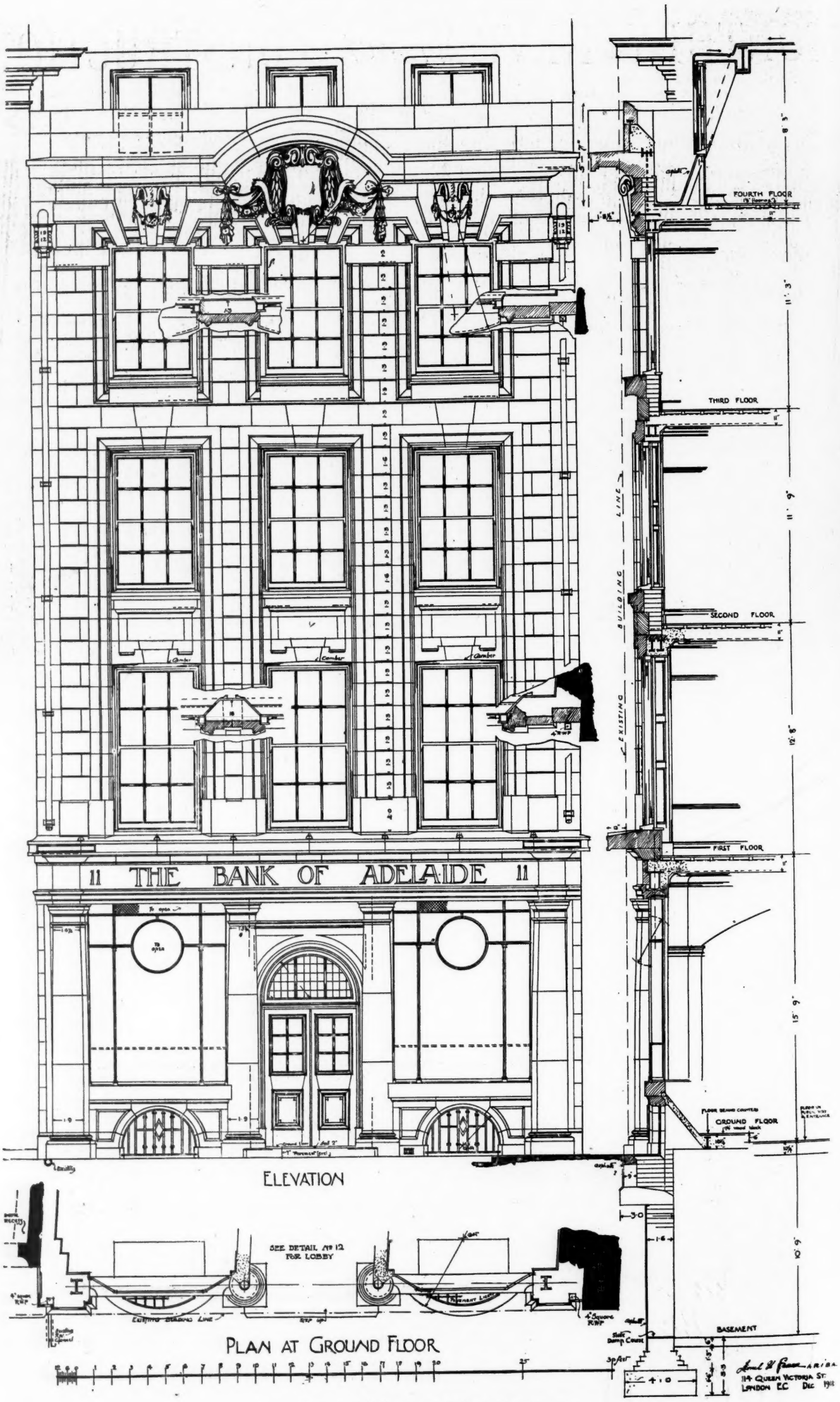
The first floor is occupied by the correspondence staff and Board-room. The correspondence-room is well lighted from both ends, being about 45 ft. long by 28 ft. wide. The necessary wall finishings cannot be completed at present owing to the new brickwork being insufficiently dry. The Board-room, measuring 30 ft. by 24 ft., is well proportioned and panelled in wax polished Austrian oak. The carving on the fireplace is in Australian beechwood, representing various Australian produce and flowers, etc., the ram's horns having been worked into the design for the corbel under the clock shelf. This oak work and the carving by Mr. Rogers has been executed at Messrs. Trollope's Grosvenor-road Works.

The ground floor, which is used for banking purposes, extends for a depth of about 90 ft. back from the pavement, and was somewhat difficult to arrange owing to the narrowness of the site. However, the plan adopted of placing the cash desks and bill department upon either side of the central passageway, with manager's room and securities department at the rear, seems to afford a satisfactory solution to this most important problem. The central position of the staircase, fitted with full automatic push-button safety lift, constructed by Messrs. Smith, Major, & Stevens, Ltd., and the lighting area in the centre of the building affords excellent light and ventilation throughout. The walls of the banking hall have been lined with second statuary marble, by the Art Pavements and Decorations, Ltd., who also executed the "Hopton Wood" stonework to the entrance lobby and the mosaic paving throughout, together with stair treads and landings, and it will be noted that these are fitted with small tiles made of Carborundum, which afford excellent foothold. The fittings throughout the banking hall are in Honduras mahogany, the iron counter grilles being those used in the former premises. The wrought-iron grilles on the staircase and the domed lantern have been carried out by Messrs. Weldon & Co., Ltd., of Croydon, the latter being constructed of lead and steel, with wire wove fire-resisting glass, with heating coil returned round the inside dome.

The basement is used entirely for safes and staff lavatories. It is lined throughout with glazed brickwork; an especially large electric book lift, capable of carrying 13 cwt., communicates at a convenient point with the ground floor. The safes have been carried out by Messrs. Hobbs, Hart, & Co. and Messrs. Chubb. The Lift and Hoist Company, Prince-street, Deptford, have supplied one of their electric book and bullion lifts.

The building is heated throughout from heating apparatus in the basement, together with hot-water supplies to all lavatory basins; the work has been carried out by Messrs. Geo. Wright, Ltd. Messrs. Bratt, Colbran, & Co., Mortimer-street, W., supplied one of their "Heaped" fire-dog grates for the Board-room. They also supplied the oak mantels, Irish green marble surrounds and steel interiors, with their patent "Heaped" fires, for the visitors' and spare-rooms.

The front has been built in Portland stone



The Bank of Adelaide, Leadenhall-street.

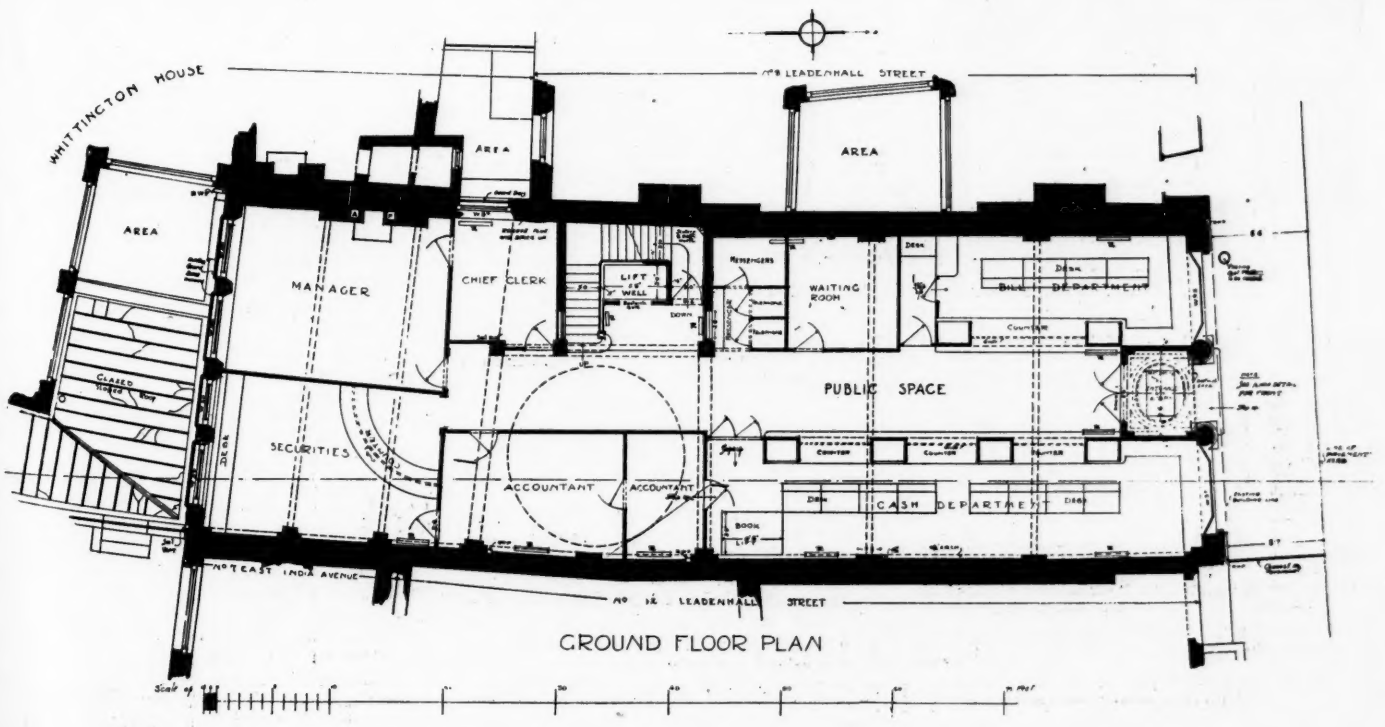
The Bank of Adelaide : Detail of Front.

Mr. Lionel U. Grace, F.R.I.B.A., Architect.

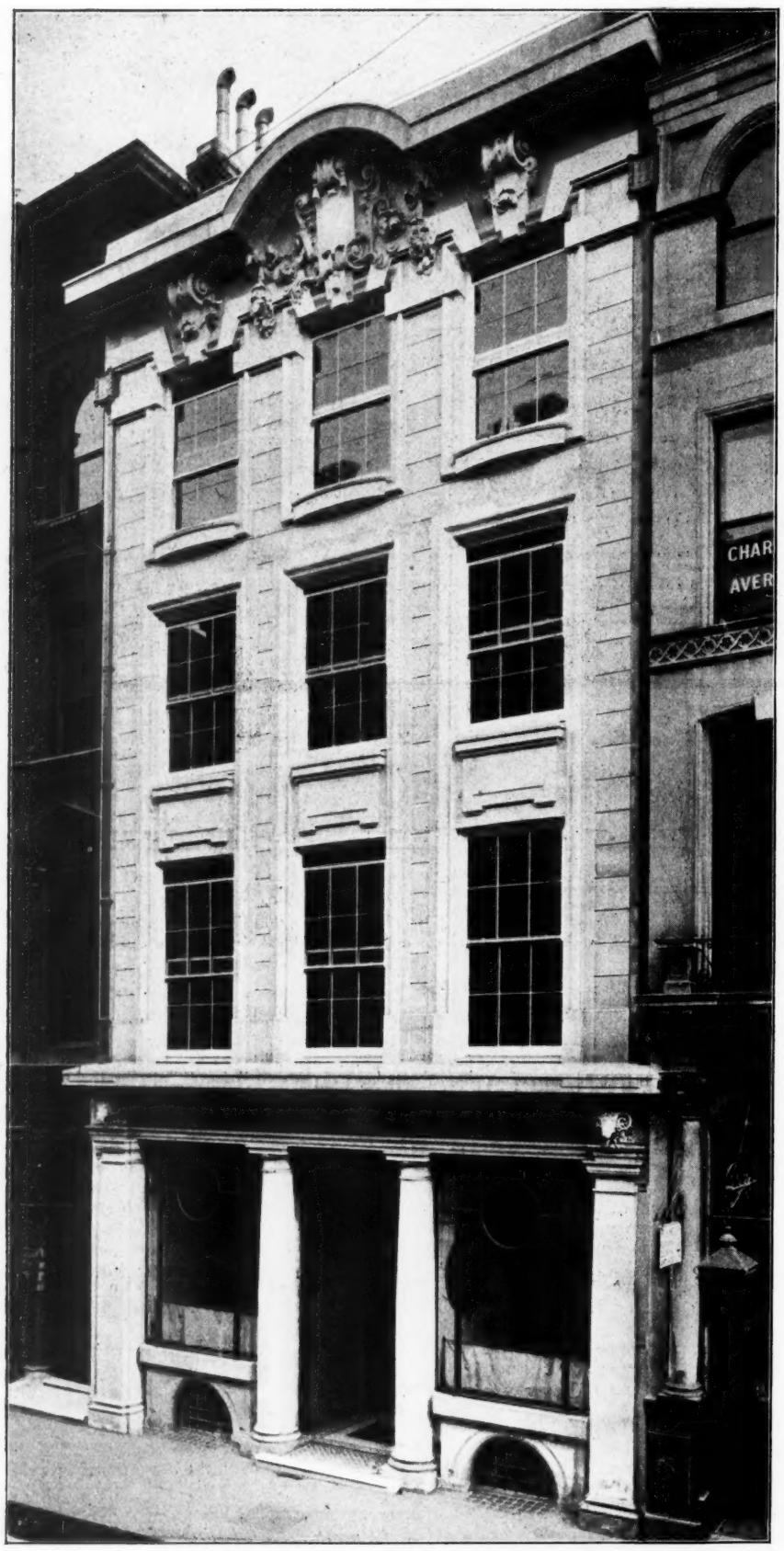
facings, the rams' heads in the frieze over the ground floor being intended to typify Australia. The stone, supplied by Mr. F. J. Barnes, came from the same quarries as those from which he is supplying the Portland stone now being used to reface Buckingham Palace. The red letters over the entrance are in vitreous enamel upon copper, and have been supplied by Messrs. Yennadis & Co. The stone-carving throughout has been carried out by Mr. Roselieb, who has carefully adhered to the architect's designs, and thoroughly appreciated the scale required, some of the flowers under the upper cornice being as much as 12½ in. in diameter. It might be mentioned that 63 ft. 6 in. is the total height of the front above the pavement exclusive of roof.

The building is of fire-resisting construction throughout, all steelwork, which has been supplied by Messrs. Rutty & Co., of Basinghall-street, E.C., being cased in concrete, and the floors and roofs constructed of steel and concrete ; all brickwork being in cement mortar throughout. Messrs. Merryweather & Co. supplied fire appliances.

Messrs. George Wright, Ltd., Queen Victoria-street, London, E.C., installed the hot-water heating apparatus throughout the bank. They also supplied the Delta metal collapsible gates to the entrance and fixed thirty-four Wright's "Compactum" hat and coat cabinets in the bank lavatory. In the manager's room they supplied antique finish interior with Irish green marble panels at sides, and in the correspondence-room and spare-room, on the third floor, interiors with their "Everbrite" fire and tile panels. The firm also supplied cooking-range and fireplaces in caretaker's quarters. The bronze windows were made and fixed by Messrs. Williams,



The Bank of Adelaide, Leadenhall-street.



The Bank of Adelaide.

Mr. Lionel U. Grace, F.R.I.B.A., Architect.

Gamon, & Co., of Chester, for whom Messrs. George Wright, Ltd., are agents.

The whole of the work was carried out from the designs and under the supervision of Mr. Lionel U. Grace, F.R.I.B.A., of Queen Victoria-street, E.C.

Our photographs of the building are by Messrs. Minnitt & Co., Fish-street-hill, E.C.

OIL-MIXED CONCRETE.

SINCE the publication last year of the results of his investigations into the properties of oil-mixed concrete Mr. L. W. Page, the director of the United States Office of Public Roads, has continued his experiments, and the latest results obtained have been published in pamphlet form by the Office of Public Roads. The Report deals first with the laboratory and service tests and then with the uses of oil-mixed concrete, the following notes having been abstracted and condensed from the voluminous records presented.

For most purposes where damp-proofing is required 5 per cent. of oil by weight is all that is necessary. The sand and cement should be mixed dry, water added to the mixture, and the mass again mixed. Oil is then added and the mortar again turned, care being taken to see that the oil is thoroughly incorporated. The mortar is then mixed with stone or gravel, previously moistened, until the aggregate is thoroughly coated. In a machine-mixer the cement, sand, and water are first mixed, and alternate batches of oil and stone are added until the required quantity of oil is incorporated and then the remainder of the stone is added.

Uses.

All tests so far made on oil-mixed mortar and concrete are indicative of a wide future usefulness for these materials, principally in damp-resisting construction. The following types of construction are among those that might be treated at slight extra cost by the incorporation of a small amount of the proper kind of mineral oil residuum with the mortar or concrete used:—Basement floors, basement walls, watering troughs, cisterns, barns, silos, concrete blocks, roofs, and stucco. In the subjoined notes we refer only to classes of construction more particularly of interest to our readers.

Basement Floors.—The following method of construction is suggested for preventing the permeation of moisture from the subsoil. If the underlying soil is very wet, a 6-in. foundation of sand, cinders, broken stone, or gravel should be laid and well rammed, with suitable drainage. On the foundation a 4-in. layer of 1 : 2 : 5 concrete should be formed, with a top coat of oil-mixed mortar applied before the concrete has hardened. Existing concrete floors can be improved by the application of oil-mixed mortar after the surface has been cleaned and made thoroughly wet. The bond between the old and the new work will be improved if the old surface is roughened by a chisel or hammer and covered by a wash of cement grout before laying the oil-mixed mortar. For an ordinary basement floor a 1-in. layer should be sufficient.

Cellar Walls.—The penetration of moisture through concrete walls may be prevented by using a mixture in the proportions of 1 : 2½ : 5, with 10 per cent. of oil. Existing walls of stone, brick, or concrete can be improved by rendering the surface with 1 : 2 mortar mixed with 5 per cent. of oil. The surface should be roughened if the wall is of concrete, or the mortar joints raked out to a depth of ½ in. if of brick or masonry.

Concrete Blocks.—Building blocks generally need not be waterproofed, but should, however, be rendered proof against the permeation of water by absorption. The use of a small quantity of mineral oil in a concrete block renders it non-absorbent, so that even after hard rain there is no danger from damp walls. In 1 : 2 : 4 mixtures 5 per cent. of oil is sufficient.

Roofs.—Cement mortar mixed with oil and reinforced with steel-wire meshing may be advantageously used in the construction of roof slabs. These slabs could be assembled on the rool after hardening. Reinforced concrete tiles may also be advantageously made with cement concrete containing a small percentage of mineral oil residuum.

Stucco.—The first or scratch coat of cement mortar should be mixed in the proportions of 1 : 2, and if 5 per cent. of oil is added the coat will be permanently waterproof. The use of oil in the second coat may be omitted.

Summary of Conclusions.

(1) The tensile strength of 1 : 3 oil-mixed mortar is very little different from that of plain mortar.

(2) The times of initial and final set are delayed by the addition of oil; 5 per cent. of oil increases the time of initial set by 50 per cent. and the time of final set by 47 per cent.

(3) The crushing strength of mortar and concrete is decreased by the addition of oil. Concrete with 10 per cent. of oil has 75 per cent. the strength of plain concrete at twenty-eight days. At the age of one year the crushing strength of 1 : 3 mortar suffers but little from the addition of oil in proportions up to 10 per cent.

(4) The toughness or resistance to impact of oil-mixed concrete is but slightly affected by the addition of oil in proportions up to about 10 per cent.

(5) The stiffness of oil-mixed concrete appears to be but little different from that of plain concrete.

(6) Results of tests for permanent deformation indicate that no definite law is followed by oil-mixed concrete.

(7) Oil-mixed mortar and concrete containing 10 per cent. of oil show very little absorption, and under low pressures both are waterproof.

(8) Oil-mixed mortar containing 10 per cent. of oil is absolutely watertight under pressure as high as 40 lb. per square inch. Tests indicate that oil-mixed mortar is effective as a waterproofing agent under low pressures when plastered on either side of porous concrete.

(9) Bond tests show the inadvisability of using plain bars as reinforcement with oil-concrete mixtures. The bond of deformed bars is not seriously weakened by the addition of oil in proportions up to 10 per cent.

MOVING A THREE-STORY OFFICE BUILDING.

HAVING found it necessary to provide increased office accommodation, an insurance company at Glens Falls, New York State, first proposed to demolish their original building, but as this was in good condition they afterwards decided to present it to the Freemasons of Glens Falls for use as a masonic temple on condition that the structure should be removed from its original site within forty days.

We give in Fig. 1 an outline perspective of the building, which measures 105 ft. by 60 ft. in plan, including three stories with 16-in. brick

Fig. 1. Office Building at Glens Falls.

walls, and a two-story basement with 28-in. walls and heavy arched floors. It was built about twenty years ago at a cost of more than 15,000*l.*

Having secured a new site on the opposite side of the same street, the Freemasons accepted the offer, and the building was successfully transferred to new foundations prepared between two private houses. Fig. 2 is a plan showing the original site and new position of the building, which was turned through an angle of more than 90 deg. and moved 300 ft. in all. After the expenditure of 8,000*l.* for the site and interior alterations the building is now said to be worth 20,000*l.*

Preparatory to the removal the entire weight of the building, about 2,550 tons, was transferred to transverse steel needle-beams arranged in groups of three, about 5 ft. apart, passing transversely through the building below the ground floor, and projecting 3 ft. beyond the outer walls. These beams were carried on five longitudinal lines of 12-in. by 16-in. sills, one line in the centre of the building, one line inside, and one line outside each longitudinal wall.

The sills were supported on four-hundred 10-ton jacks placed on five longitudinal rows of cribbing, under which was a continuous grillage of 2-in. planks, distributing the load over the entire area of the site. The end walls and transverse partitions were supported on needle-beams, 10 ft. long, resting on the top flanges of the transverse needles, and 400 cubic yds. of earth were excavated beneath and around the foundations so as to permit the

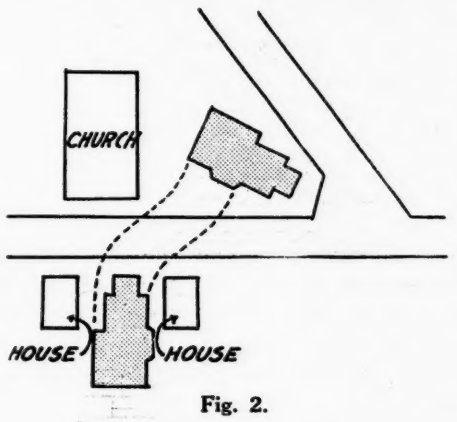


Fig. 2.

building to be rotated in a horizontal plane after it had been raised 2 ft. by the aid of the jacks.

In order to enable this operation to be performed rollers were laid over the grillage, and under the basement walls in the middle of the building a pivot was provided consisting of a 6-in. cast-iron ball-bearing between upper and lower steel plates. The jacks were shifted as required to permit the insertion of the rollers, in sets of three to five, and when the weight of the building had been transferred to the latter the jacks were removed and the building revolved about 90 deg. by tackle attached to capstans, each operated by two horses. The work of rotating the building occupied about two weeks, and after it had been completed the weight of the building was transferred back to the jacks, the circular tracks were removed and the rollers replaced, in groups of five, under 10-ft. lengths of track timbers. The rollers moved on bottom-track timbers spaced 9 in. each side of the top timbers so as to provide space for the rollers to be "cut" to allow for lateral movement as the building travelled across the street. This requirement was necessary in order to enable it to be carried round the corner of the church and into position between the two houses on either side of the new site. About eight days were required to move the building from the old to the new site after it had been turned, and the electric cars running in the street across which the building was moved were only obstructed for two days.

On arriving at the new site the building was transferred to cribbing, 13 ft. high, built up from an excavation for the basement stories. It was then lowered about 2 ft., so as to bring the ground floor 5 ft. above the street level when the needle-beams and cribbing were removed. The entire operation was completed in sixty working days without misadventure of any kind.

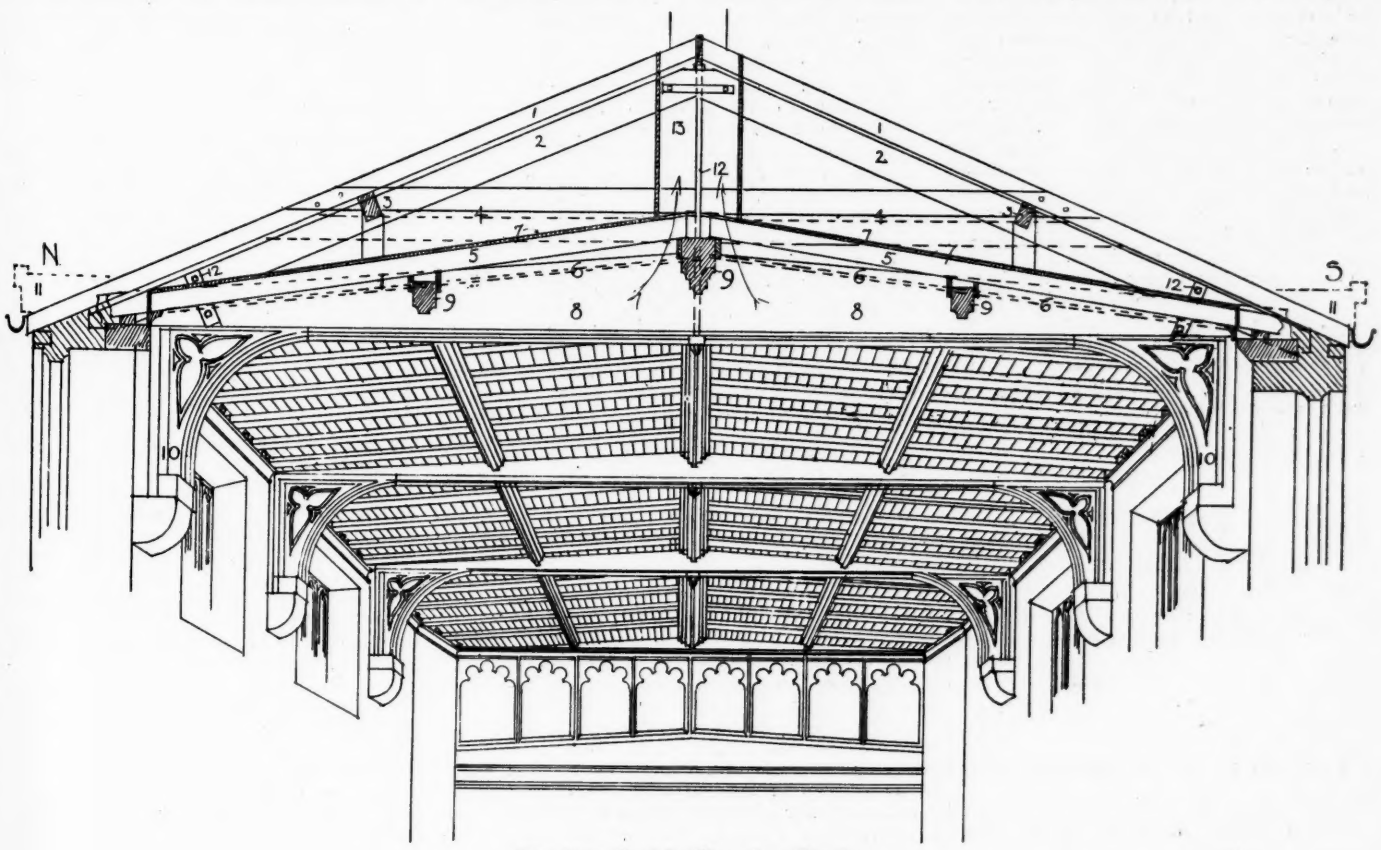
ST. MARY'S PARISH CHURCH, FINCHLEY.

WE have received the following description of the restoration of the roof of this church from the architect, Mr. Geo. Waymouth, F.R.I.B.A. :—

The original church was built of oak timber from the adjacent forests in the VIIth century. This was replaced by a Norman structure in the XIIth century, but only a few fragments remain. In about 1450 the present church was erected, and probably consisted of a low tower, nave, and chancel only. About 1800 a north aisle and galleries were added, and in 1870 a south aisle was erected, the north gallery removed, a vestry added, and the space over the chancel opening filled in with the woodwork shown on the drawing.

The chief feature is the roof which has just been restored. This originally consisted of an open timbered ceiling formed with very fine oak tie beams reaching as much as 27 in. by 12 in. and heavy longitudinal oak timbers carrying square ceiling rafters, boarding, and lead flat.

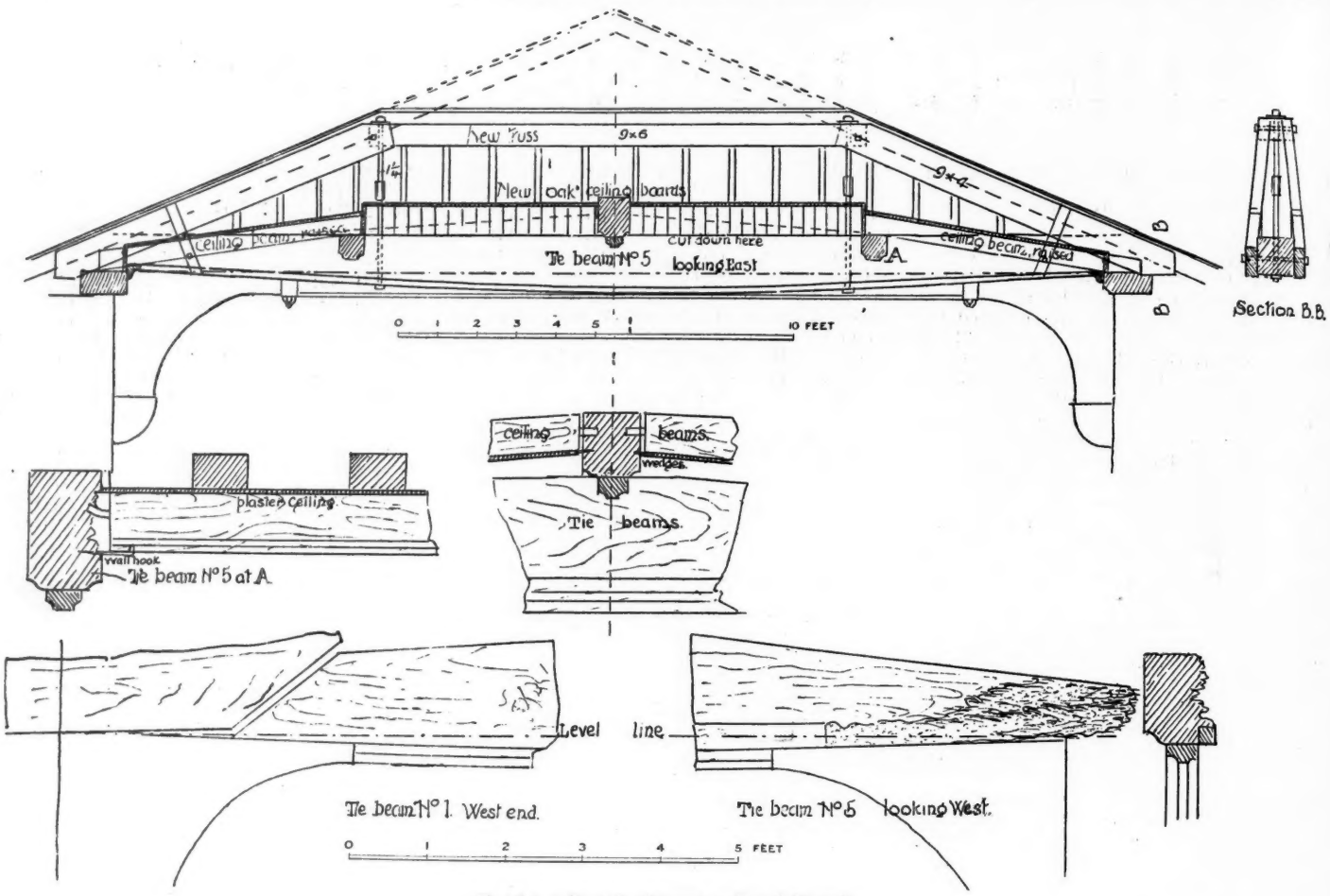
In about 1800 the lead flat was, it is said, stolen, and in its place was erected a very low-pitched slate roof, which is now covered with heavy Westmorland slates. At the same time



Finchley Parish Church : Roof.

Mr. Geo. Waymouth, F.R.I.B.A., Architect.

1. Old rafters.
2. New trusses to carry tie beams.
3. Old purlins carrying rafters.
4. Old collars removed and refixed.
5. Old ceiling beams raised and repaired and exposed.
6. The old plaster ceiling removed.
7. New oak ceiling boards.
8. Old oak tie beams secured and cleaned off.
9. Old oak longitudinals ditto.
10. Old oak hammer beams ditto.
11. Lead gutter removed.
12. Tie bolt and straps to carry beams.
13. Ventilation shaft.



Finchley Parish Church: Roof Details.
Mr. Geo. Waymouth, F.R.I.B.A., Architect.

the internal timbers were covered up with a plastered ceiling and the remainder painted and grained. Wide flat lead gutters were formed at the eaves, having a very unsightly appearance and causing leakage and injury to the feet of the timbers.

The roof has been found to be in a dangerous condition. There were no trusses to the outside roof, the weight of which fell upon the tie beams, which, with other main timbers, had rotted at their bearings. The plastered ceiling has been removed, and in order to support the ceiling and roof, and at the same time to preserve the original appearance, trusses were inserted in the roof, and to them the tie beams have been slung up. The painting and graining has been cleaned off all the timbers and new oak ceiling boarding laid upon the rafters. During this process it was found that at some early period the main timbers had been decorated with a red colour and the boarding with colour and metal stars. This was in accordance with the taste of the period, as was the later painting and graining over of the oak itself.

The work has been rather difficult owing to the small space inside the roof, especially at the east end, where it was awkwardly hipped off, but Messrs. Dove Brothers have carried out the work very satisfactorily at a moderate expense. The church has been closed for a month, and the work is now complete.

The state of some of the timbers is shown upon the accompanying details.

GEO. WAYMOUTH.

THE HUMBER TUNNEL SCHEME.

SINCE the development of Grimsby and Immingham, and the expansion of the iron and other industries in North Lincolnshire, the need for direct communications between the opposite shores of the Humber has been more than ever evident.

It is also important for the city of Hull to obtain better means of railway communication with Lincolnshire and the South of England than exist at present.

The shortest railway route between Hull and London is that *viâ* Goole and Doncaster, a distance of 196 miles, whereas the combined ferry and train route *viâ* New Holland is only 168 miles long. If it were possible to run trains beneath the Humber, the journey to and from London might be reduced by some 30 miles, and Hull would secure the advantage of being placed in direct connexion with an important industrial and agricultural district at present cut off by a wide estuary.

Some of our readers may wonder why so useful an undertaking as a tunnel beneath the Humber has never been commenced, and others may ascribe the absence of such a work to want of enterprise on the part of those most concerned.

The fact is, however, that a Bill was introduced into Parliament as long ago as 1873, and, having been approved by the House of Commons Committee, was thrown out by the House of Lords Committee by the casting vote of the Chairman, Lord Powis. No reason was assigned for the rejection of the Bill, which has thus shared the fate of many other measures calculated to develop the industries and commerce of the United Kingdom.

On the Continent a work of equal importance would naturally be undertaken by the Public Works Ministry. In this country we have no Department with authority to execute works of the kind, and the enterprise of public companies is constantly being curbed by totally unnecessary Parliamentary interference, largely influenced by the opposition of rival interests.

Urgent as was the need for the Humber tunnel in 1873, it is still more urgent to-day. The project involves no engineering difficulties, and the tunnel could be completed at moderate cost within about two years. If the railway companies concerned and the Hull City Council would settle the details of a new project there is every reason for hoping that the consent of Parliament would be obtained to the execution of a work that is obviously of national importance.

CONSTRUCTION NOTES.

Ancient Autogenous Welding. IT is commonly supposed that the autogenous method of welding is an entirely modern idea, but this, in fact, is a popular fallacy. As Professor Gowland mentioned at the last meeting of the Institute of Metals, the Romans used the process in making lead pipes for underground water services. These were formed by bending up a sheet of metal to form a tube with re-curved edges. Between these melted lead was run so as to fuse the metal and to form a perfect lead tube For pipes intended to be employed above the ground the Romans used soldered joints, the composition of the solder being practically the same as that of the material in the present day.

Cost of Domestic Heating. REFERRING to the recent Cantor lectures by Mr. C. R. Darling, at the Royal Society of Arts, on "Heat Economy," Mr. J. D. Hamilton Dickson states in a letter to the *Times Engineering Supplement* that in the winter of 1910–11 he made a continued series of observations on the cost and efficiency of heating appliances in his own house, employing on open coal fire, a closed anthracite stove, an open gas fire, and an electric radiator. The cost of fuel was 23s. 6d. per ton for ordinary coal, 39s. per ton for anthracite, and 2s. 8d. per 1,000 cubic ft. for gas, the charge of electricity being 1d. per Board of Trade unit. The costs of heating per week of seven days of twelve hours each were :—Open fire, 49d.; anthracite stove, 14d.; gas fire, 141d.; electric radiator, 168d.; giving the ratios of 1·0, 0·29, 2·88, and 3·43. The advantage of the anthracite stove is further demonstrated by the fact that it has been continuously burning since September 28 last, keeping the room at or over 60 deg. Fahr., generally with the window open, even in the coldest weather. The cost is stated at 18·46d. per week of seven days of twenty-four hours.

Gatun Dam, Panama Canal. THIS important work is about 1½ miles long and 105 ft. high, measuring 2,000 ft. wide at the base and 200 ft. wide at the top. It was formed by two parallel ridges of earth and rock, from the excavation for the Gatun lock and the Culebra cut, several hundred feet apart at the bottom of the valley and brought nearer together as the height of the embankment increased. The work of construction was commenced in August, 1907; and in December, 1908, suction dredges were employed to deliver sand and clay from the river bottom into the space between the two lines of earth and rock. The material was pumped in at the sides, with the result that the larger particles remained along the edges while the lighter part flowed towards the centre. As water drained away a compact mass of sand and clay was left, forming a watertight core for the dam. This core has lately been completed, and the only work to be done on the dam proper is to complete the covering of the core. For the past two years a head of 20 ft. has been against the dam, and from 30 ft. to 50 ft. for some months, the amount of seepage having been inappreciable. The cost of the dam is stated at 1,666,000*l.*, or 416,000*l.* less than the cost as estimated in 1908, the saving being due to the reduced height of the work.

THE BUILDING TRADE.

AUSTRALIAN BUILDING AND LABOUR NOTES.

THE problem of coping with the growing population of Sydney (which is now over 600,000) is one which has been agitating the minds of leading engineers for many years. Mr. Hay, an English expert, was engaged by the Government to report on a proposal to construct railways through the city in order to cope with existing and future traffic. Mr. Hay's report has just been laid upon the table of the Legislative Assembly. It confirms all that has been said about the present congested condition of the streets of Sydney. Mr. Hay's plan is to construct underground railways through the city, which will provide a three-minute service. Provision is made for four underground stations. The estimated cost is given at 1,175,273*l*. The sum named is to cover all works, including sewer diversions of gas and water mains, pumps for drainage, escalators (moving staircases), ventilation, booking-office equipment, hydrants, permanent way, and contingencies, 10 per cent., but is exclusive of electrical equipment, signals, rails, and land resumption. Mr. Hay also proposes a system of underground railways for the suburbs. One to the eastern suburbs he estimated will cost 995,000*l*., and another to the western suburbs 2,134,000*l*. A portion of the Report also deals with the question of connecting Sydney with North Sydney. A bridge is favoured in preference to tunnels. The Report has been very favourably received.

Several proposals have lately been made to erect "sky-scrapers" at Sydney. The result is that the authorities have been induced to consider the question as to whether it is desirable to allow buildings of this class to be erected at Sydney. The State Government and the City Council have both intimated that they are against the erection of high buildings. The proprietors of a leading newspaper who proposed erecting a building 180 ft. in height have been refused permission to do so. The Lord Mayor and a representative of the Government have conferred on the matter. It is now announced that both are agreed that it is undesirable to permit buildings to be erected over 150 ft. in height. The Government proposed to legislate on the subject, but, seeing that the City Council has already passed a resolution to limit the height of buildings to 150 ft., it has expressed the intention of going no further in the matter if it receives an assurance that the Council will see that this by-law is enforced. The Lord Mayor stated that after carefully considering the question of the height of buildings to be placed on corners of streets he is of opinion that in such cases the mean double width of the street and half the width thereof in addition should be allowed as the height of a building to be erected on a corner.

At both Melbourne and Sydney the building trade continues busy. At Melbourne the new buildings are principally being erected in the suburbs. They are generally of the cottage type, containing about six or seven rooms. The style of cottage usually erected is of brick with tile roof. There are, however, a fairly large number of wooden houses also erected, besides a proportion of wood and reinforced concrete. In the suburbs of Sydney the principal new buildings consist also of cottages. There is, however, a difference between the two centres; very few wooden houses are built at Sydney. The disinclination to build wooden houses is evidently the risk of injury from white ants. Financial institutions at Sydney refuse to advance money for the erection of wooden houses. This does not apply to Melbourne. As regards the facilities for obtaining building loans, there is also a marked difference in the two centres. At Sydney the terms upon which building loans can be obtained at present are 5½ per cent. and 6 per cent. interest, the bank or institution advancing up to 50 per cent. or 60 per cent. of the value of the proposed dwelling. In Melbourne the rate of interest is 4½ per cent. to 5 per cent., and the restrictions as to class of building are very much easier.

The labour problem in Australia continues to present difficulties. No sooner has a wages board fixed the rate of wages for a period of three years at rates in advance of former rates than the unions put forward further demands for still higher wages, reduction of working-hours, limitation of apprentices, and other restrictions. The argument put forward in support of fresh claims for increased wages is usually the increased cost of living. So far it looks as if workmen really do not benefit much by the operation of wages boards. Increased wages, shorter hours, and substituting adult for junior labour increase the cost of the production of commodities consumed by workmen, who, in consequence, find that artificial measures for benefiting their condition are to a large extent illusive.

The Master Builders' Association of New South Wales is just now considering the question of establishing a labour bureau. The object is to provide master builders with competent workmen, when required, at the shortest notice. Part of the scheme provides for obtaining workmen from Great Britain. It is thought that there is room here for a large number of competent workmen in all branches of the building trade. It is worth noting, however, that just at present there is a fair proportion of house painters out of employment. This branch of the building trade is the one which suffers least through scarcity of workmen. The explanation probably is that the trade in busy times attracts a large number of persons who have never had any training as painters, but who quickly gain enough experience to enable them to do plain brush-work. These men can join the union without the question being raised as to their qualifications They are sent to employers applying for workmen in the order in which their names are registered in the employment book of the union. The result is that incompetent men obtain the minimum wages fixed as payment for competent workmen.

STATE OF THE BUILDING TRADE.

WE take the following, by Mr. J. J. Jarvis, managing director of Messrs. J. Jarvis & Sons, Ltd., Hackney-road, London, N.E., and director of the Imperial Property Investment Company, Ltd., Basinghall-street, E.C., from the *Annual Trade Review of the Chamber of Commerce Journal*:—

"A year ago labour troubles in the building world seemed imminent and any improvement in the general conditions of the trade a very long way off. The writer stated most definitely that, in his opinion, there would be no strike in 1912, and expressed more than a pious hope that before the year closed the long overdue improvement in the trade's conditions would be at hand. This forecast proved to be exactly correct.

So far as the building trade was concerned, any differences with the workers were adjusted without much difficulty, the men being wise enough to perceive the impossibility of successfully demanding an all-round increase during a period of depression.

As is now generally understood, the world's trade moves in cycles of prosperity and depression, and a study of international conditions lends colour to the belief that throughout the world there are evidences of a "boom." There is, however, no boom in the building trade, nor is there likely to be for some little time to come. The continued depression in the property market is still largely checking the building of houses, although in favoured spots some activity prevails, whilst the general tone of real estate is only relatively better by comparison with recent "slump" years. The speculative builder remains in a very bad way, he still cannot arrange his finances satisfactorily, and without credit he cannot exist; moreover, many a man of apparent substance has been brought to ruin owing to the calling in of mortgages (nearly impossible to renew) and the unparalleled depreciation in the value of his holdings. It is well to remind those who question the legitimacy of this branch of the trade that the world's business is largely done on credit, and that if every counting-house were called upon to pay its debts to-morrow in cash the world's traders would be bankrupt.

There are, however, sound reasons for anticipating a material advancement in the value of property in the near future, and owners will be well advised to hold on a little longer. Against the threatened additional burdens on land can be set the permanently higher cost of building, whilst the admitted failure of the land taxation scheme of 1909 is not calculated to encourage further hasty legislation in this direction. It seems quite certain, therefore, that rents will advance in the near future, and with this increase the values of property must be enhanced.

Reference has been made to the high cost of materials, and it is desirable to analyse the reasons for the recent advances accurately to forecast the trend of prices in the future. Part of the rise is unquestionably due to causes beyond the natural laws of supply and demand. Reference is, of course, made to the prevalence of "rings" and "combines" that now profess to control so many sources of supply. The cut-throat competition of a few years back has given place to an almost equally blameworthy system of squeezing the consumer. Luckily, history affords many examples of the rise and fall of corners in other commodities, and still further advances in price are bound, in the long run, to spell disaster—first, by the invitation to outside competition; secondly, by the introduction of substitutes; and, lastly, by the check on the use of the particular material consequent upon its abnormal price.

There are, however, unquestionably reasons why a permanently higher range of prices is assured. The trend of wages is undoubtedly upward, railway rates are not likely to be reduced, coal is dearer and likely to be, and transport of every description is costing more. Legislation, in the shape of the Insurance Act, has also added its quota, and it is surprising by how much this is increasing the cost of building. The employer not only has to pay the amount provided under the Act, but finds himself obliged to contemplate an additional payment, amounting almost to as much again, for the increased cost of materials owing to the corresponding tax of the workers who produce them—add to this the abnormal cost and inconvenience of "stamp-licking," and the distaste with which the Act has been received can be better imagined than described.

Some idea of its difficulties may be gathered from the following variations in each week:—If a man works one day he pays 5d. (4d. Health and 1d. Unemployment), if two days he pays 6d., if more than two days 6½d.; if he is an apprentice or a foreman he pays 4d. only (exempt from unemployment)—there are, therefore, four different sums that can be deducted from a man's wages each week, and in a trade where men are employed by the hour, and are continually changing employers, the confusion can be easily understood. The writer has long favoured the principle of insurance, and does not despair that some satisfactory State scheme may ultimately be evolved, but the present system stands in need of considerable amendment before it will be popular with either employer or employed.

What of the future? The present improvement is likely to continue because increasing trade must of necessity reflect on the building industry. But labour troubles are likely to follow increasing prosperity since the cost of living in recent years has risen disproportionately to wages. The building trade must, therefore, look forward to 1913 with some anxiety, for, although the workshops may be better filled, both the labour and the material markets will need most carefully watching or the contracting firms may find themselves doing more work to earn less in the way of profit. But that an all-round improvement in the trade is likely can be predicted with some reasonable degree of certainty."

BUILDING SCHEMES AND BY-LAWS BEFORE PARLIAMENT.

A CONSIDERABLE number of the Bills deposited in the Private Bill Office for consideration in the next Parliamentary Session have provisions dealing with streets and buildings and the construction of works. The Liverpool Corporation propose to construct new streets in Walton and Wavertree, and have prepared estimates amounting to 78 000*l*. for this purpose. They are also dealing with streets constructed on town-planning principles, and by Clause 16 it is proposed to allow new streets to be laid out of any width (but not less than 24 ft. wide), provided that they are satisfied that the main lines of communication in the neighbourhood and the connexions between such main lines are sufficiently provided for; and that such streets are situated on estates the owners of which agree (*a*) that no more than twenty houses be built to the acre; (*b*) that the front of the houses erected be set back at least 30 ft. from the centre line; (*c*) that the spaces

between the backs of any houses in the street and any erected behind shall be not less than 54 ft.; and (*d*) that the spaces between the building line of the new street and the street shall be used only as a garden and be maintained to the satisfaction of the Corporation. There is also a clause dealing with the dimensions of dwelling-houses, and it is laid down that no house shall be erected which has not at least one living-room above 120 super. ft., and half the sleeping-rooms containing 108 super. ft., clear in each case of any staircase or any reduction, save one chimney-breast and fireplace. All rooms are to be 9 ft. high, except sculleries, bathrooms, etc.

The Aberystwyth Corporation take powers to provide a Town Hall and municipal buildings and winter garden, and in the clauses dealing with streets and buildings state that every new dwelling shall contain one living-room, with 115 sq. ft. of floor space and one bedroom with 110 sq. ft., whilst no habitable room shall have less floor space than 90 sq. ft.

The Broadstairs and St. Peter's Urban District Council seek to expend 15,000*l.* in widening the High-street, and they have fixed the area of habitable rooms for new houses as follows:—One living-room, 115 sq. ft.; one bedroom, 110 sq. ft.; and no room less than 70 sq. ft.

Eastbourne Corporation are purchasing Devonshire Park and take powers to erect pavilions, etc., and the Hove Corporation are asking for authority to define the future line of streets, to make by-laws regulating the condition of empty houses, and the fixing and removal of notices and advertisements in empty houses.

The London County Council are again bringing forward their scheme to reconstruct Lambeth Bridge as a steel arch bridge, 48 ft. wide, at a cost of 240,000*l.* In their General Powers Bill the Council seek powers for the Southwark Borough Council to appropriate a portion of St. George's Churchyard for the erection of a Coroner's Court and mortuary; to extend the time for the execution of the Westminster improvement; and to remove the statutory restriction which prohibits the Battersea Borough Council from utilising part of the Latchmere allotment estate for the purpose of erecting working-class dwellings. In its Tramways and Improvements Bill the Council is bringing forward the proposal to construct the subway under Cannon-street and St. Paul's Churchyard, which is seriously exercising the minds of those responsible for St. Paul's Cathedral.

Lymm Urban District Council are fixing the area of habitable rooms at one living-room not less than 120 sq. ft., one bedroom not less than 110 sq. ft., and no room less than 90 sq. ft. They also seek to modify the building by-laws in the case of iron, steel, and reinforced concrete buildings.

The Metropolitan Water Board, besides seeking powers to construct works at Laleham, ask that their buildings shall be exempt from the provisions of the London Building Act.

The Mynyddislwyn Urban District Council provide that in all new houses there shall be one living-room of a floor area of not less than 115 sq. ft., one bedroom of not less than 110 sq. ft., and no habitable room of less than 70 sq. ft. They also seek power to make by-laws as to the materials used in buildings.

Northampton Corporation desire to spend 190 000*l.* on waterworks; the Windermere Urban District Council, 21,000*l.* on water; and the York Corporation are buying out the Gas Company, and spending 99,000*l.* on improving the supply.

Reading Corporation are proposing to erect a new bridge over the Thames in substitution for the existing iron bridge, and 35,070*l.* is put down as the cost, whilst a further 29,495*l.* is scheduled for a second bridge to connect the eastern end of the town with Caversham. A sum of 22,796*l.* is also put down for street improvements.

The Governors of Westminster Hospital are seeking powers to acquire a new site for the Institution, and to sell the present site.

The Manchester Royal Exchange, Ltd., are again bringing forward a scheme for the extension and enlargement of the Exchange buildings, which will necessitate the making of a new street.

The Arundell Estate Bill provides for the closing of Arundell-street and Panton-square in the City of Westminster.

Berry Urban District Council wish to spend 127,637*l.* on waterworks; to modify the by-laws dealing with reinforced concrete and iron and steel buildings; whilst Clause 10 provides "that no dwelling-house shall be erected after the passing of the Act without being provided with a bathroom or a fixed bath."

Bradford Corporation propose spending 1,250,215*l.* on extensive street improvements in the neighbourhood of Foster-square, Leeds-road, and Bridge-street, whilst in their suggested new sanitary regulations it is proposed to prohibit the occupation of back-to-back houses by more than one family.

Chesterfield Corporation, who are asking for powers to run motor-buses, submit an estimate of 2,000*l.* for the provision of car-sheds and other buildings.

Street works are estimated to cost the Derby Corporation 79,000*l.*, whilst power is also taken to extend the Fire Brigade station; and an estimate of 67,148*l.* is inserted in the Leicester Corporation Bill for street works.

Morley Corporation fix the area of habitable rooms at 132 sq. ft. for one living-room, 110 sq. ft. for one bedroom, and no habitable room at less than 60 sq. ft. Power is further being taken to modify the by-laws with regard to iron, steel, and reinforced concrete buildings.

For land and buildings to house trolley vehicles the Nottingham Corporation put down an estimate of 8,775*l.*

Southport Corporation are taking powers to widen a number of streets at a cost of 50,000*l.*, to modify the by-laws in the case of steel and reinforced concrete buildings, and to make by-laws relating to materials for building.

West Bridgford Urban District Council seek to fix the size of habitable rooms at not less than 120 sq. ft. for one living-room, 110 sq. ft. for one bedroom, and no living-room at less than 70 sq. ft. They also wish to modify the by-laws regarding steel and reinforced concrete buildings, and ask for power to manufacture slabs from destructor refuse.

Power to modify the by-laws relating to steel and reinforced concrete buildings are also sought by the East Ham Corporation, the West Bromwich Corporation, and the Southend-on-Sea Corporation.

LABOUR IN THE COLONIES.

THE January circulars of the Emigrants' Information Office, 34, Broadway, Westminster, S.W., and the annual editions of the penny and other handbooks, show the present prospects of emigration:—In *Canada* there is no demand for more labour during the winter, except for female servants.—In *New South Wales*, in Sydney and suburbs, the building, furniture, and iron trades have been fairly well employed; competent carpenters, joiners, cabinet-makers, plasterers, and strong railway labourers, are in demand.—In *Victoria* employment continues to be good; and assisted and nominated passages are granted to certain classes. There is a large demand for generally useful men, and a limited demand for mechanics, such as bricklayers, carpenters, and plasterers, but no demand in the engineering trades.—*South Australia* grants cheap passages to rural workers and approved emigrants. The building, engineering, and other trades continue busy, and a large amount of money is being spent on railways and other public works. There is a good demand for masons (wallers), carpenters, bricklayers, painters, plasterers, joiners, cabinet-makers, brick-makers, boiler-makers, galvanised ironworkers, brass finishers, and sheet-metal workers.—There is a good demand in *Queensland* for strong labourers on railway construction. The demand for mechanics is fairly well met locally.—In *Western Australia* there is not much demand for more mechanics, except a few sanitary plumbers on sewage works.—In *Tasmania* there is a demand for general labourers for the construction of tramways in new districts, and for other public works. The Tasmanian Government contributes 6*l.* to 9*l.* towards the fares of nominated emigrants, and 4*l.* 10s. in the case of children.—In *New Zealand* very few competent mechanics are out of work, but there does not appear to be any special demand for more men, except sometimes for plumbers.—In the *Union of South Africa* the building trades of Johannesburg continue to be active in most branches, and plumbers, brickmakers, bricklayers, and stonemasons are well employed; the engineering trades continue dull. There is no demand for more labour at Pretoria. At Cape Town there is no demand except for a few skilled plumbers and plasterers. At Durban the supply of labour is generally sufficient.

OPPORTUNITIES IN THE BUILDING TRADE.

After the unfavourable remarks one so often hears about the state of employment in the building trade in this country, it is pleasing to hear of a growing city in Western Canada which is open to take all the competent workmen associated with the building trade that it can get. High wages and permanent employment are offered to all comers who are competent in one of the trades needed. The Secretary to the Board of Trade of the city in question is, we are informed by Mr. W. Beecher Smith, of 8, Aytoun-street, Manchester, at present in England to obtain a sufficient complement of such men to go over and help them to do their work.

GENERAL BUILDING NEWS.

ABERDEEN BUILDING TRADE.

For some time back the fortunes of this important industry have been very low indeed. As showing the decline that has set in, it may be stated that during 1898 buildings were erected to the value of 514,013*l.*, and in the following year to the value of 449,212*l.* After 1903, when the value of the year's work was 401,069*l.*, there was a steady falling off till 1908, in which year the total amounted to only 91,272*l.* In 1909, 1910, and 1911 the figures showed a slight increase compared with 1908, but were much below those for the preceding years. The statistics as to the extent of building in the city during the past twelve months—for the period from December 1, 1911, to November 30 last—are now available, and are most disappointing. They show the period under review to have been the worst the builders as a whole have experienced for about twenty years at least. The total value is several thousand pounds less than even that for 1908, when those who had the welfare of the industry at heart fondly hoped that the low-water mark had been reached. The total value of the new buildings, alterations, and additions mentioned during the year was 85,746*l.*, as compared with 139,781*l.* in 1911—a decrease of 54,035*l.* This total included 14,830*l.* expended on factories and workshops, and 11,540*l.* on shops, offices, warehouses, and other business premises. The number of the new buildings erected and additions and alterations carried out during the year under review was 201, as against 214 in 1911. The value of the additions and alterations to dwelling-houses and other buildings was 33,717*l.* It is not in Aberdeen alone, it is stated, that the building trade is in a depressed condition. In Glasgow and Edinburgh and some of the English towns speculative building has been very quiet. While the past year has been such an unsatisfactory one, the prospects for the next twelve months are not more bright, and it would appear that the builders must just resign themselves to the inevitable. The official figures relating to new buildings have been supplied by Mr. D. T. Byers, A.M.Inst.C.E., of the Burgh Surveyor's Department.—*Aberdeen Daily Journal.*

PENCOED (GLAMORGANSHIRE) SEWERAGE AND SEWAGE DISPOSAL.

At a recent meeting of the Penybont District Council, Mr. T. J. Moss-Flower, C.E., Victoria-street, Westminster, S.W., and Bristol, presented a scheme of sewerage and sewage disposal for Pencoed. The work involves nearly 6 miles of sewers. Owing to the configuration of the district, it is necessary to lift the whole of the sewage. It will gravitate to the sewage works, where it is proposed to raise it by means of centrifugal pumps. The scheme has been referred to a Committee for consideration.

BUILDING IN NEWCASTLE.

The year 1912 has been a very lean one for the builders, contractors, and architects in Newcastle. The reports submitted to northern building societies indicate the flatness of the property market, and those who are in a position to ascribe a reason for this state of affairs attribute it to the over-building which occurred in previous years. However, it is confidently believed that matters in the building world will shortly right themselves almost automatically, and there appear to be some grounds for the belief that ere the new year is far on its course the building and allied trades will have immeasurably improved, and that 1913 will be able to present a far more satisfactory record in this connexion than its predecessor.

BUILDINGS IN BIRMINGHAM.

From the point of view of the architect and the builder the past year has been one of considerable activity in Birmingham. With improvement in trade—and the past three years, despite interruptions caused by the railway and coal strikes, have been good ones for the mixed industries with which Birmingham and district abounds—always comes the impetus to embank on building enterprises. It is impossible to compare the activity thus displayed last year with that shown in 1911 by giving the number of plans deposited and approved, for the reason that the figures for 1911 included only the first month of the history of the extended city, while those for the year just concluded include the suburbs formerly without the municipal area. Between January 1 and December 13 in 1911 705 plans were deposited with the City Surveyor. Last year the number up to December 18 was 1,264. Others deposited between that date and the last day of the year brought the total up to close upon 1,300. The busiest months were June, July, and November, when the figures were 144,276 and 148 respectively.

Last year was one in which many big undertakings were either completed or initiated, the effect of which will be to alter considerably the appearance of the city. First of all, the Council House extension—or rather the first part of it—was brought to a conclusion. During the last month plans have been deposited for the second part of this big scheme, which deals mainly with the Great Charles-street frontage. When this work is carried out accommodation will be found for the fitting housing of the Patent Library now located in Ratcliff-place, for various Corporation officials, and for additional art galleries and a museum. Although not coming within municipal purview and control, the big scheme of the Great Western Railway Company, on which something like a million sterling is being expended in the Birmingham district, occupies the leading place in local building enterprises. Plans have also been deposited for the erection of a new Children's Hospital in Ladywood-road to take the place of the existing institution in Broad-street.—*Birmingham Post.*

BELFAST BUILDING TRADES.

While the past year has not by any means fully realised the expectations of those engaged in the trade, still it has been what might be described as a good average one. Not for some time has there been such a dearth of municipal and other public undertakings handed out for execution by local builders, and had it not been for the orders of private firms, although these were not of such proportions as was the case during 1911, last year might have turned out one of the worst since the great slump some time back. Perhaps one of the reasons for the holding back of building work is the greatly increased price of essential commodities and the desire to wait until a reduction takes place, although there is not much hope of a substantial lowering of rates in the immediate future. During the year the value of cement increased by 10s. per ton; bricks advanced from 3s. 6d. to 4s. per ton, while spruce deals rose by 2*l.* per standard. Rumours are rife of a probable increase in other departments, so that it is highly probable that during the present year building work will cost considerably more than has been the case for many years. The output of residential buildings has not maintained the usual standard, but the prospect is that before long work of this class will greatly improve. For years, owing to a slackness in this section of the trade, the number of vacant houses has been considerably diminished, and it is pleasant to record that not for a very long period have there been so few residences unoccupied as there are at present. The result will in all probability be that almost at once additional houses will require to be erected, and especially will this prove likely to be the case in suburban districts and those localities that have lately been provided with increased tramway facilities. Employment has on the whole been fairly good, the bricklayers, however, having the disadvantage. The carpenters, as a rule, were kept very busy, but during a good portion of the twelve months they were very hard to get owing to the demand for their services at the two shipbuilding yards, where work for this class of artisan was particularly brisk.—*Belfast News-Letter.*

NEW BUILDINGS IN LONDON.

Temporary school, Mortlake, S.W. (865*l.*); Mr. Ramsay Nares, County Education Offices, Kingston. Business premises, King's Cross-road, N.E.: Messrs. Lovegrove & Papworth, architects, 374, Old-street, E.C. Wesley Institute, Plumstead, S.E.: Messrs. Gordon & Gunton, architects, Blomfield House, E.C.

TRADE NEWS.

At the Children's Welfare Exhibition, Olympia, the model boating lake, which is 120 ft. long by 30 ft. wide, was lined throughout with Callender's sheeting, and so rendered watertight. On previous occasions Messrs. George M. Callander & Co., Ltd., of 25, Victoria-street, S.W., have supplied and fixed their special lining with satisfactory results, and the winding canal in the Dutch village at a recent exhibition was rendered possible by the help of the material.

Under the direction of Mr. A. J. Windybank, architect, Kingston-on-Thames, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air-inlets, has been applied to Ham Schools, Ham, Surrey.

The Parish Church, Tidworth, is being ventilated by means of Shorland's patent exhaust roof ventilators, supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

Mr. Charles Thomerson, sanitary and hot-water engineer, of Hackney-road, N.E., has sent us a neat little calendar for 1913. It is mounted on a card, 10 in. by 6 in., and has a rotary photo in the centre.

We have also received a block calendar from Messrs. Ashwell & Nesbit, Ltd., engineers, of Great James-street, W.C. The calendar carries information of the firm's warming ventilation and hot-water services, and other specialities for which they are known.

Messrs. Hibberd Brothers, Ltd., sawing, planing, and moulding mills, Vauxhall, send us one of their 1913 calendars, which sets out the specialities of the firm.

Another neat calendar has been received from Messrs. Robert Ingham, Clark, & Co., Ltd., advertising their "Pearline" white enamel.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ABERCREGAN.—Hotel for the Cefn-y-van Estate Company.

Anniesland (Glasgow).—Alteration and addition to works, Caxton-street, for Messrs. Barr & Stroud, manufacturing electrical engineers.

Bexley.—Additions to Pincott Laundry, Bexley Heath, for Messrs. Sadler Brothers.

Bishop's Stortford.—Hostel; Governors, Herts and Essex High School for Girls, Bishop's Stortford.

Blackburn.—Enlargement and reconstruction of Holehouse Mill for Messrs. Smith & Forrest, cotton goods manufacturers.

Blyth.—Drill hall, Old Wapping; Messrs. Graham & Hill, architects, Eldon-street, Newcastle.

Bolton-on-Dearne.—Housing scheme (1,500*l.*); Mr. J. W. Wilson, Surveyor, Urban District Council Offices, Bolton-on-Dearne.

Bray.—Hall, Quinsboro'-terrace, for the Bray Division of the Ancient Order of Hibernians.

Bristol.—Houses (over 6,000*l.*); Trustees of the late Robert Furber, of St. George, Bristol.

Brown Knowl.—Church and school (1,175*l.*); Trustees, Primitive Methodist Church, Brown Knowl.

Burnley.—Vicarage; Rev. J. W. Broadbent, Vicar, St. John's Church, Gannow, Burnley.

Cathcart.—Alterations to school, Grange-road, Queen's Park, and additions to schoolhouse, Craig-road (20,000*l.*); Mr. G. J. Cameron, Clerk, Cathcart School Board, 104, West Regent-street, Glasgow.

Chard.—National Provincial Bank; Mr. R. G. Spiller, builder, Chard.

Cheadle.—Enlargement of Council Offices: Mr. Edward Sykes, Surveyor, Cheadle and Gatley Urban District Council Offices, Cheadle.

Chelmsford.—Housing scheme; Mr. C. Brown, Surveyor, Town Hall, Chelmsford.

The following plans have been passed:—Extension to premises, New-street, for the Hoffman Manufacturing Company, Ltd.; three houses, Swiss-avenue, for Mr. F. J. Hazleton; showroom and workshops, London-road, for Messrs. Cleale & Son.

Chesterfield.—Police-station: Mr. G. F. Kirk, builder, Springbank-road, Chesterfield.

Chorley.—Weaving shed, Bolton-road (700 looms), for Messrs. John Lund & Son, Ltd.: Messrs. Buckley & Batterall, architects, St. Thomas's-square, Chorley.

Cirencester.—Business premises; Mr. V. A. Lawson, architect, 17, Rowcroft, Stroud.

Clitheroe.—School (15,000*l.*); Mr. H. Littler, architect, 16 Ribblesdale-place, Preston; Messrs. W. O. Bleasard & Son, builders, Clitheroe.

Coatbridge.—Proposed extensions and alterations to hall; Trustees, St. John's Episcopal Church, Coatbridge.

Cruden.—Alterations to parish church (2,000*l.*): Mr. G. B. Mitchell, architect, 148, Union-street, Aberdeen.

Darlaston.—School (350 places); Mr. J. Hutchings, Architect, County Education Offices, Stafford.

Dartford.—Extensions to refuse destructor; Mr. T. E. Tiffin, Surveyor, Urban District Council Offices, Dartford. Plans have been passed for a garage, etc., at the rear of Easthill, for Mr. W. J. Summers, and for a cinema theatre in Lowfield-street, for Messrs. Withers & Meredith.

Darwen.—Fire-station (1,750*l.*) and gasworks buildings (15,000*l.*): Mr. R. W. Smith-Saville, Surveyor, Town Hall, Darwen.

Deaf Hill (Co. Durham).—Church hall and institute; Messrs. Clark & Moscrop, architects, Feethams, Darlington.

Devonport.—Additions to technical school (1,600*l.*): Mr. W. H. Craig, Education Offices, Devonport.

Didlington (Norfolk).—Garage, cottages, etc.: Messrs. Dunn & Watson, architects, 35, Lincoln's Inn-fields, W.C.: Messrs. Rattee & Kett, builders, Station-street, Cambridge.

Dudley.—The following plans have been passed:—Alterations and additions to 35 and 36, King-street, for Messrs. C. Whitehouse & Son; additions to works, Birmingham-road, for Mr. E. Vaughan; parish-room, Himley-road, for Rev. J. A. Holroyd; extensions to laundry, High-street, for Mr. C. Suckling.

Durham.—Picture hall; Mr. R. Wylie, architect, Low Fell, Gateshead.

Dysart (N.B.).—School (5,500*l.*); Mr. D. F. Smith, architect, 210, High-street, Kirkcaldy.

Eastbourne.—Presbyterian church (5,500*l.*): Mr. A. Ford, architect, 7, Gildredge-road, Eastbourne. Additions at sanatorium; Mr. A. E. Prescott, Surveyor, Town Hall. Plans have been passed as follows:—Alterations to 152, 154, 156, 158, and 160, Seaside; Mr. W. B. Carr, builder. Additions, Hillside, St. Anne's-road, for Mr. W. H. Jones, M.A.; Mr. Carlos Crisford, architect; Messrs. Miller & Selmes, builders. Ten houses, Desmond-road; Mr. J. R. Jones, builder. Additions to Hill Brow, Bolsover-road, for Mrs. Smyth; Mr. F. G. Cooke, architect; Messrs. Peerless, Dennis, & Co., builders. Additions to Minster Lodge, Grassington-road, for Capt. Swinford; Messrs. M. Martin & Sons, builders. Five houses, Desmond-road; Mr. A. G. Ticehurst, builder. Additions to Arranmore, Carew-road, for Mr. J. W. Crookes; Mr. L. P. Newman, builder. Additions and alterations to premises, Willowfield-square, for Messrs. Bobby & Co.; Mr. J. W. Woolnough, architect; Messrs. G. Bainbridge & Son, builders. Plans have been lodged for a picture hall on site of Nos. 6 and 8, High-street, for Mr. J. Dunlop; Mr. A. A. Oakden is the architect.

Eccles.—The plan of Mr. W. A. Norman has been passed for eighteen houses in Haddon-road, Patricroft.

Edinburgh.—Extensions to works for Messrs. Bertrams, Ltd., machinery manufacturers; Mr. D. McCarthy, 25, Frederick-street, Edinburgh. Additions at college; Mr. J. Anderson, Heviott Watt College, Edinburgh. Garage, Colinton-road; Mr. C. E. Tweedie, 4, Belhaven-terrace, Edinburgh. Stables, Upper Grove-place, for Co-operative Association (3,000*l.*); Mr. T. P. Marwick, 43, York-place, Edinburgh. Labour Exchange, Tollcross; Mr. W. T. Oldrieve, H.M. Office of Works, Edinburgh.

Elton.—Extensions to works for Messrs. C. Walmsley & Co., Ltd., wholesale ironfounders, Wood-street, Elton.

Essex.—Proposed schools, Clacton, Gosfield Hall, Messing, Brightlingsea, Runwell, and Wickford; Mr. F. Whitmore, Duke-street, Chelmsford.

Ewood (Blackburn).—Wesleyan school; Messrs. Lloyd & Millward, Blackburn-road, Darwen.

Eye.—Council houses; Mr. Penwill, Surveyor, Rural District Council Offices, Peterborough.

Fermoy.—Extensions to military hospital; Mr. Brown, Fermoy.

Ferryhill Station.—School (3,500*l.*); Mr. W. Rushworth, architect, Shire Hall, Durham.

Fishguard.—Wireless-station, Pencw Height, for the Great Western Railway Company (about 2,000*l.*); Mr. T. D. Harries, builder, Goodwick, Fishguard.

Foggington.—School (3,000*l.*); Mr. P. Morris, Richmond-terrace, Exeter.

Folkestone—The following plans have been passed:—Additions to Arnold House, Castle-road, Sandgate, for Mrs. M. Baker; Messrs. D. Baker & Co., builders. Garage and house, Cheriton-road, for Messrs. R. Old & J. T. Youngs. Sixteen houses, Sandgate-road, for Mr. L. G. A. Collins.

Fordingbridge (Hants).—Drill hall (4,000*l.*): Mr. J. F. Fogerty, architect, Belfast House, Gervis-place, Bournemouth.

Gainsborough.—Alterations and additions to King's Theatre; Mr. E. F. Green, architect, 32, Caskgate-street, Gainsborough.

Glasgow.—Extensions to wharves, Kingsdon Dock, for Clyde Navigation Trustees (55,000*l.*); Mr. W. Murray Alston, 10, Robertson-street, Glasgow. Additions to Veterinary College (2,000*l.*); Messrs. Clarke & Bell, architects, 212, St. Vincent-street, Glasgow. Extensions to chair factory for Messrs. J. Walker & Sons, Ltd. (2,500*l.*); Messrs. McWhannel & Rogerson, architects, 11, Jane-street, Glasgow. Picture theatre (2,000*l.*): Mr. W. L. E. Aitken, 21, West Nile-street, Glasgow. Extensions to works, King-street, Mile End, for Messrs. Mavor & Coulson, manufacturing electrical engineers; Messrs. Honeyman, Keppie, & Mackintosh, architects, 4, Blythswood-square, Glasgow. Laundry, Temple Anniesland (1,550*l.*); Messrs. J. B. Wilson & Son, architects, 92, Bath-street, Glasgow. Works and stores, East End, for Messrs. Wallace & Co. (2,500*l.*); Mr. L. B. Buik, architect, 196, St. Vincent-street, Glasgow. Extensions to Knightswood Hospital (4,000*l.*); Mr. A. B. M'Donald, Engineer, City-chambers, Glasgow. Warehouse, Miller-street (3,000*l.*); Mr. J. A. Laird, architect, 243, West Campbell-street.

* See also our list of Competitions, Contracts, etc., on another page.

Glasgow. Church for Trustees of Maryland Established Church, Newlands (7,000*l.*); Mr. P. McGregor Chalmers, architect, 95, Bath-street, Glasgow. Extensions to Messrs. Christies' Wire Works (2,000*l.*); Messrs. Miller & Black, architects, 58, Renfield-street, Glasgow. Picture theatre, Argyle-street (2,500*l.*); Mr. George Kay, 78, Quarry-street, Glasgow. Picture house, Sauchiehall-street (1,800*l.*); Mr. T. Baird, architect, 134, Bath-street, Glasgow. Picture theatre, Queen's Cross (2,500*l.*); Mr. W. Reid, architect, 196, St. Vincent-street, Glasgow. Premises, Paton-street, for Messrs. J. Wallace & Sons, engineers; Mr. W. Baillie, architect, 2, West Regent-street, Glasgow. Extensions to works for the Bolt and Rivet Company (4,000*l.*); Mr. N. C. Duff, architect, 115, Wellington-street, Glasgow. Alterations to Kelvindale Paper Mills for Messrs. Edward Collins & Sons, paper manufacturers. Alterations and additions to nurses' home; Mr. P. Rintoul, Secretary, Glasgow Royal Infirmary, 212, West George-street, Glasgow.

Goole.—Public slaughter-house; Mr. C. G. Bradley, Urban District Council Offices, Goole.

Great Yarmouth.—Receiving home (2,800*l.*); Mr. R. Haward, architect, 5, Queen-street, Great Yarmouth.

Greenock.—Stables, etc., for the Co-operative Society (2,000*l.*); Messrs. Stewart, Tough, & Alexander, architects, 2, Hamilton-street, Greenock. Dairy, Mearns-street, for the Co-operative Society (2,500*l.*); Messrs. J. & T. Low, architects, 19, Hamilton-street, Greenock. Extensions to Glebe Sugar Refinery (4,500*l.*); Messrs. McArthur & Orkney, architects, 32, Cathcart-street, Greenock.

Greenside.—Church (1,600*l.*); Mr. Greenhow, architect, New Bridge-street, Newcastle.

Grimsby.—Children's homes, Brighowgate (8,000*l.*); Mr. H. C. Scaping, architect, Court-chambers, Town Hall-square, Grimsby.

Hamilton, N.B.—Hospital (20,000*l.*); Mr. W. H. Purdie, Surveyor, Town Hall, Hamilton.

Hanley.—Extension of disinfecting-station (535*l.*); Messrs. C. Cornes & Son, builders, Lichfield-street, Hanley.

Haslingden.—Weaving shed for Messrs. James Rothwell, Ltd., cotton goods manufacturers, Baxenden Mill; Mr. N. Sutcliffe, Dale-street, Liverpool.

Heanor.—Additions to secondary school; Mr. Evan W. Small, County Education Offices, Derby.

Heckmondwike.—Pavilion for the Heckmondwike Bowling Club; Mr. W. E. Cave, architect, Heckmondwike.

Holmfirth.—Hippodrome (3,000*l.*); Mr. P. N. Brown, Hawthorn Bank, Holmfirth.

Hove.—Plans have been passed for additions to the Cinema Theatre in Western-road for Mr. R. Mitchell, and for additions to factory, Occupation-road, for Mr. W. H. Overton, on behalf of Messrs. Green & Co.

Hull.—St. Peter's Hall, Southbank (1,610*l.*); Messrs. Lowther & Rigby, 77, Lowgate, Hull.

Ipstones.—Enlargement of church school (sixty extra places), for the Trustees.

Kent.—Proposed special instruction centres, Broadstairs (750*l.*), Edenbridge (500*l.*), Herne Bay (600*l.*), Northfleet (1,000*l.*), Sittingbourne (1,250*l.*), Southborough (550*l.*), Swanscombe (700*l.*), and Whitstable (500*l.*); alterations to school, Minster-in-Sheppey; and school, Sheerness (400 places); Mr. W. H. Robinson, architect, Kent Education Offices, Caxton House, Westminster, S.W.

Kinlochleven.—One hundred and fifty houses for the British Aluminium Company, Ltd., 109, Queen Victoria-street, E.C.

Leek.—School (5,490*l.*); Mr. Thomas Godwin, builder, Raymond-street, Hanley.

Littleborough.—Additions to Rock Nook Mill, Sladen Wood, for the Sladen Wood Mill Company, cotton spinners.

Little Bytham.—Houses; Messrs. Gelsthorpe & Son, builders, North-road, Bourne.

Llanddewi'r-Cwm.—Restoration of church for the Trustees.

Maesteg.—Alterations and extensions to Town Hall (6,125*l.*); Mr. Fred Bond, builder, 49, Beda-road, Canton, Cardiff.

Manchester. — Enlargement of school, Victoria-avenue, Blackley; Mr. J. H. Reynolds, Education Offices, Manchester.

Marfleet.—Additions to Marfleet School; Mr. J. H. Hirst, City Architect, Town Hall, Hull.

Matlock.—Church, Darley Dale (2,000*l.*); Messrs. Currey & Son, architects, 3, Market-place, Derby.

Morecambe.—Chapel, Sandilands; Trustees, Baptist Church, Morecambe.

Newbarns.—School; Mr. A. Hawkridge, Education Offices, Barrow-in-Furness.

Newcastle-on-Tyne.—Extensions to premises, Grainger-street, for Messrs. Henry A. Murton, Ltd., india-rubber goods manufacturers; Mr. E. W. F. Liddle, architect Prudential-buildings, Mosley-street, Newcastle.

New Earswick. — St. Andrew's Church; Vicar, All Saints' Church, Huntingdon.

Newport Pagnell.—Residence; Mr. E. Guy Dawber, architect, 22, Buckingham-street, W.C.

Northampton.—Warehouse and offices for Messrs. Barratt; Mr. A. E. Anderson, architect, Market-square, Northampton. The following plans have been passed:—Five houses, Spencer Bridge-road, for Mr. J. W. Gossage; alterations to premises, Albert-street, for Messrs. W. Wren & Co.; picture palace, Grove-road, for Mr. S. L. Gamble; additions to factory, St. James'-road, for Messrs. Padmore & Barnes. Plans have been lodged for a factory in Kingsthorpe-road for Messrs. W. Barrett & Co.

North Kessock.—Additions to Coulmore House (2,000*l.*); Messrs. C. Gordon & Co., Queensgate, Inverness.

Norwich.—Cottage homes (3,150*l.*); Mr. E. J. W. Huggins, Guardians' Offices, Newport Pagnell.

Old Hill (Staffs).—School, Wrights'-lane; Mr. D. Wright, Education Offices, Rowley Regis.

Port Dundas.—Buildings, Crawford-street and Mid Wharf, for Messrs. Lawe's Chemical Manure Company, Ltd., Crawford-street, Port Dundas.

Portsmouth.—Extensions to infirmary; Mr. G. E. Smith, architect, Victoria-road, Portsmouth.

Preston.—Proposed nurses' home; Mr. J. Clarke, Guardians' Offices, Preston.

Rawtenstall.—Alterations and additions to fire-station; Mr. J. Johnson, Engineer, Town Hall, Rawtenstall.

Rhyl.—Market hall and public offices (about 10,000*l.*); Mr. A. A. Goodall, Surveyor, Council Offices, Rhyl.

Rosyth.—Workmen's houses, for Messrs. Easton Gibb & Son, Ltd.

Rotherham.—Plans have been passed as follows:—Motor garage, rear of Brookslands, Doncaster-road, for Dr. E. H. Knight; proposed alterations and additions to Crown Hotel, Moorgate-street; mill, Westgate, for Messrs. Robinson Brothers; eleven houses, Gerard-road, for Messrs. Ball & Waite; three shops and houses, Doncaster-gate, for Mr. W. Wing; conversion of premises, Masbro'-street, into picture palace, for Mr. J. E. Knight.

St. Helens.—Extensions to works, Sutton, for Messrs. Pilkington Brothers, Ltd., glass manufacturers.

Salford.—Plans have been passed for alterations and additions to works, Edward-street, Boughton, and Bedford-street, and to the Brunswick Inn, Ordsall-lane. The following plans have been lodged:—Electric theatre, Marlborough-road, Broughton; church, Sharp-street, Pendleton; electric theatre, Ford-lane, Pendleton; alterations to Pankhurst Hall, St. James'-road, Broughton; electric theatre, Rumford-street; electric theatre, Broughton Bridge and Great Clowes-street, Broughton; and alterations to electric theatre, Eccles New-road, Pendleton.

Scawthorpe.—School; Mr. J. Stuart, Architect, County Education Offices, Wakefield.

Shaw.—Alterations at school; Trustees, Wesleyan Church, Shaw.

Sheffield.—Coroner's court, mortuary, and house, Nursery-street and Wicker-lane; Mr. F. E. P. Edwards, Architect, City Hall, Sheffield. The following plans have been passed:—Additions to premises, Attercliffe-road, for Messrs. G. Oxley & Sons; alterations to premises, Cairns-road, for Messrs. Green & Thompson; vicarage, Bannerdale-road, for the Rev. C. E. Curson, St. Oswald's Church, Sheffield; additions and alterations to premises, Cadman-lane, for Messrs. Cooper, Corbridge, Sons, & Co.; addition to premises, Sheffield-road, Tinsley, for Messrs. W. T. Flather, Ltd.; three houses, Myton and Ribston roads, for Mr. F. H. Mellor; addition to premises, River-street, for Messrs. Vickers, Ltd.; power-house, Stevenson-road, for Messrs. Jonas & Colver; addition to premises, Staniforth-road, for Messrs. Cravens, Ltd.; four houses, Wincobank-lane, for Mr. F. Bottomley; motor garages, Horndean-road, for Mr. J. H. Smith; buildings, Carlisle-street, for Messrs. Cammel, Laird, & Co., Ltd.; additions to premises, High-street, for Messrs. Thatched House Hotel, Ltd.; additions to premises, Prospect-road, for Messrs. C. T. Skelton & Co., Ltd.; alterations to premises, Sheffield-road, Tinsley, for Messrs. Hadfield's Steel Foundry Company, Ltd.; alterations to premises, Townhead-street, for Messrs. Cravens Ltd.; alterations to premises, Thames and Ribston roads, for the Brightside and Carbrook Co-operative Society, Ltd.; four houses, Limpsfield-road, for Mr. G. Carr; alterations to premises, Norfolk-lane, for Messrs. Mappin & Webb; alterations to premises, Attercliffe Common, for the Sheffield Picture Palace Company, Ltd.; hall off Fife-street, Wincobank, for Mr. George Greaves; four houses, Orchard-road, for Mr. R. Swindin.

Shettleston (Glasgow).—Alterations and additions to premises, Old Shettleston-road, for the North British Bottle Manufacturing Company, Ltd., Greenfield-street, Shettleston.

Stone.—Alterations at parochial school for the Managers.

Swansea. — Hall, etc., for the Trustees, Tabernacle English Baptist Chapel, Skinner-street (1,000*l.*); Messrs. W. Cousins & Son, architects, 7, Brynymor-crescent; Messrs. J. & F. Weaver, builders, Manselton Steam Joinery Works, Swansea. Business premises; Messrs. Thomas Meager & Jones, architects, 15, Wind-street, Swansea. Cinema theatre, St. Helen's-road; Mr. W. B. Jones, architect, 41, Wind-street, Swansea.

Thurlby.—Houses; Mr. T. Hinson, jun., builder, Victoria-place, Bourne.

Tilbury.—School (2,678*l.*); Messrs. Brown Brothers, builders, Bridge-road, Grays.

Tunbridge Wells.—Hall; Trustees, King Charles' Church, Tunbridge Wells.

Urpeth.—Fifteen houses for the proprietors of the Pelaw Main Collieries, Milburn House, Newcastle.

Walkden.—Additions to Wardley Mills for Messrs. Burgess, Ledward, & Co., dress goods manufacturers.

Walker.—Engine works for Messrs. Swan, Hunter, & Wigham, shipbuilders; Messrs. Caws, Steel, & Caws, architects, 22, Fawcett-street, Sunderland; Mr. W. D. Purdie, builder, Shields-road, Newcastle.

Walton.—Twenty houses; Mr. G. A. Penwill, Surveyor, Rural District Council Offices, Peterborough.

Warrington.—Alterations to dispensary at Public Health Offices; additions and alterations to Sankey Hospital, and extensions to tram-car sheds; Mr. T. Longdin, Surveyor, Town Hall, Warrington. Proposed building for imbeciles, etc. (12,000*l.*); Mr. A. Bottomley Clerk, Guardians' Offices, Warrington. Proposed buildings, Bridge-street, for Messrs Greenall, Whitley, & Co., Ltd., brewers, Wilderspool Brewery, Warrington. The following plans have been passed:—Hall and Sunday-school, Elmwood-avenue, for the Trustees, Congregational Church; alterations and additions to premises, Dallam-lane, for Messrs. P. Walker & Sons, Ltd.; eight houses, Ashwood-avenue, and twelve houses, Briarwood-avenue, for Mr. D. Cooper; picture theatre, Church-street, for the Warrington Kinema Company.

Weardale.—Church; Messrs. Clarke & Moscrop, architects, Feethams, Darlington.

West Hartlepool. — Power-station, etc.; Messrs. White & Co., builders, Chester-road, Sunderland.

Westhoughton.—School (1,000*l.*); Mr. R. Littler, architect, 16, Ribblesdale-place, Preston.

West Monkton.—Twelve workmen's dwellings (1,672*l.*); Mr. H. G. Smith, builder, 153, East Reach, Taunton.

Weston-super-Mare. — Business premises, High-street; Mr. P. G. Fry, architect, High-street, Weston.

Willington Quay.—Graving dock; Messrs. Eltringham & Co., shipbuilders, North Shields.

Wilmslow (Cheshire). — Roman Catholic church; Mr. W. M. Gillow, architect, 66, Deansgate, Manchester; Messrs. Brown Brothers, builders, Wilmslow.

Wokingham.—Picture palace, Broad-street; Mr. C. H. Perkins, architect, Bracknell, Beds.

Worcester.—Additions to Grammar School for the Managers.

Worsthorne.—Seven houses, Cross-street, for the Worsthorne Manufacturing Company.

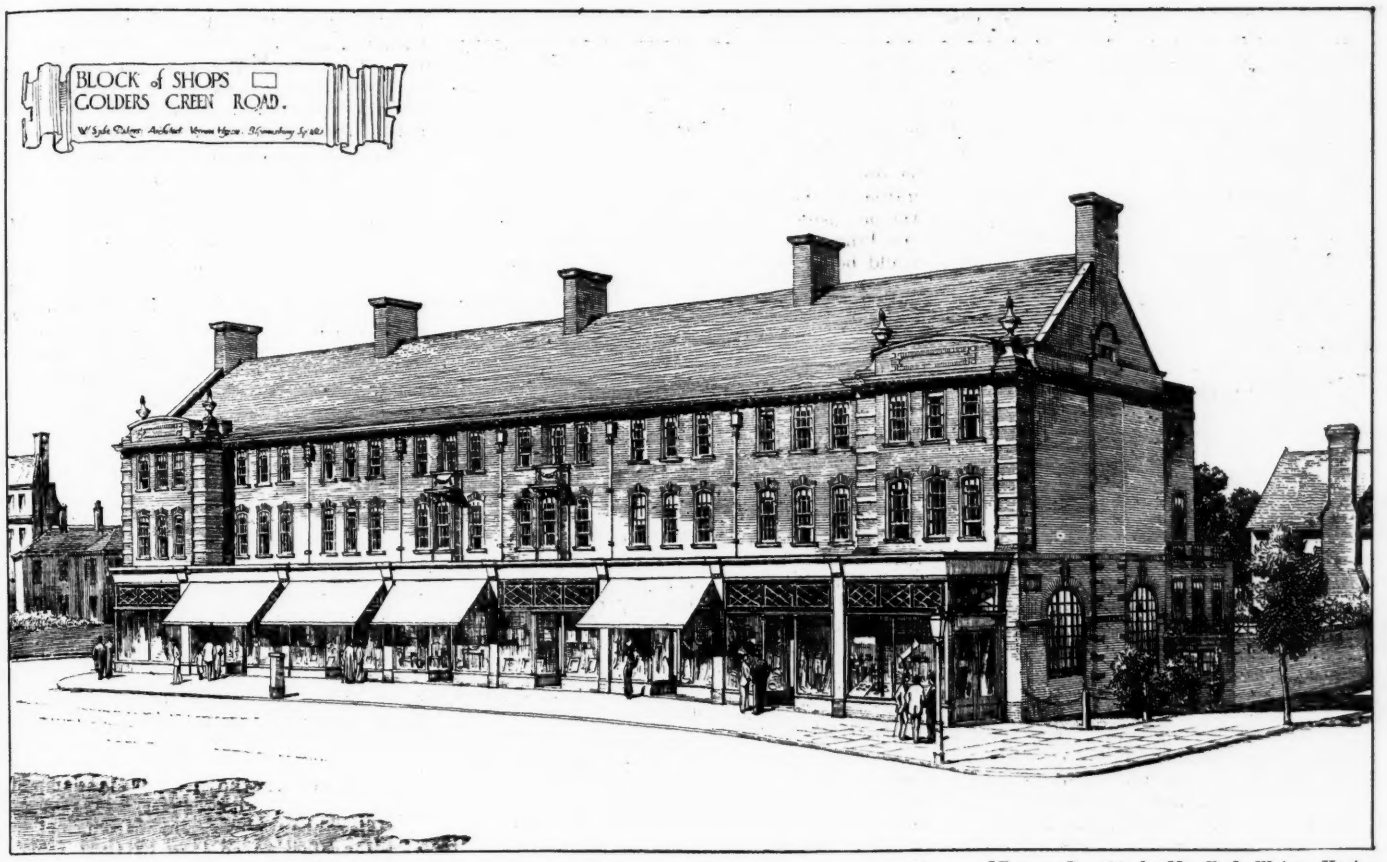
Wrotham (Kent).—Enlargement of Borough Green School (793*l.*); Messrs. J. Wood & Sons, builders, Boughton, Monchelsea.

Ystrad Mynach (Cardiff).—Six houses, Lewis-street, for the Bedwlwyn Building Club.

FOREIGN AND COLONIAL.

Parliament Buildings, Wellington, New Zealand.

With reference to the notice on p. 261 of the *Board of Trade Journal* of November 9, 1911, relative to the proposed new Parliament Buildings at Wellington, the Minister of Public Works states, in his Report for the financial year ended March 31, 1912, that the alterations of the grounds and streets in connexion with this undertaking are well in hand, and the detailed plans of the buildings themselves are nearly ready, a portion of the plans having been placed on exhibition in the temporary Parliament Buildings. The foundations of the first section of the building are being carried out under the supervision of the Public Works Department, and are well advanced. It is proposed to invite tenders for the erection of the buildings when the foundations are completed, and the Government hope that the first section of the buildings will be completed and available for use in time for the session of 1915.



[*From a Drawing by Mr. F. J. Watson Hart.*

Shops: Golder's Green.

Mr. W. Sydie Dakers, Architect.

SHOPS, GOLDER'S GREEN.

THESE shops have now been erected, the facings being in multi-coloured red sand-faced bricks and Monks Park stone dressings, with hand-made tiled roof.

The line of the shop fronts is kept parallel with the curve of the road, and the main block carried straight as shown on the plan, thus obtaining an angle doorway (the craze of practically every tenant of a corner shop) without disturbing the lines of the main block. Limitation of cost has influenced the design. The architect is Mr. W. Sydie Dakers.

ENGLISH ART.

AT the Queen's Park Art Gallery, Manchester, on the 1st inst., the first lecture of the new year was delivered by Mr. Roger Oldham, who took for his subject "The Art of Englishmen."

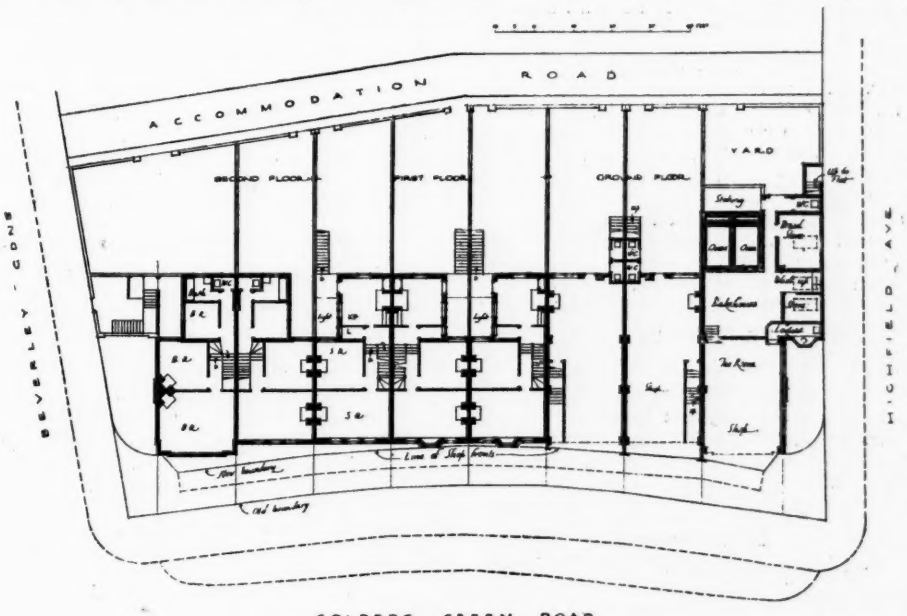
National art, he said, was the expression of national character, and the characteristics of a nation were the products of its geography and its history—the philosophic East with its unchanging calm, the solemn grandeur of Egypt, the faultless beauty of Greece, the strength of Rome, the mediæval pageantry of Italy, the mannered stateliness of France, the trim neatness of the Netherlands, the austerity of Scotland, and the homeliness of England. The climate of England had much to do with the homeliness and simplicity of its people. The sea, the sky, the earth, the green grass, the brooks and rivers, the hills and vales, all went to mould the men and the homes they had built for themselves and for their children. We were individualistic, intolerant of discipline, inapt in combination. An Englishman preferred his own way to that of other people. The ancestors of the modern Briton were picked men from various races who had the energy to invade these inhospitable shores. They became welded into the race and had left their mark on the language, character, and art of the people.

To the island race there came the call of the sea, the call that made the Englishman go forth to the ends of the earth and bring back the spoil of other lands. India, Italy, Byzantium, Normandy, Holland, Greece, and Egypt all in their turn had contributed something to the national treasure-house. Whether it were men or thoughts, words or arts, that have come to this little land, once settled here they, too, became part of the island race and its goodly heritage.

Scholars were at last beginning to realise that the Englishmen in the days gone by who painted the walls of our churches and fashioned the statues, the gargoyles, and the misereres, who illuminated the manuscripts and carved the ivories in mediæval England, were in no wise inferior to the much-vaunted Italians and the craftsmen of the countries on the other side of the Channel. Above all, perhaps the painting of the XVIIth and XVIIIth centuries required patient and widespread investigation. Often famous names had been allowed to monopolise attention to the neglect of a very large number of excellent painters whose names were seldom heard.

L.C.C. EXHIBITION OF MUSEUM AND ARCHITECTURAL STUDIES.

THE exhibition of museum and architectural studies being held this month in the Central School of Arts and Crafts is fruitful of thought. They are the works of students attached to schools of art which are maintained and aided by the London County Council, and which have taken prizes in the annual competitions in the years from 1900 to 1912. Although it is hoped that the public may avail themselves of the opportunity of seeing this work, the first object is to give art teachers the advantage of seeing the type of drawing which proves successful in these competitions and of securing them on loan for their own classrooms. For ourselves, we admit being disappointed with the quality of the work, taken as a whole, although there are notable exceptions. Twelve years is a considerable space of time, but there is no noticeable change of ideal, and, although it happens that some of the best works belong to the earlier years, we do not suggest any falling away. Three prizes are awarded annually, the first of the value of 10*l.*, and two equal prizes of 5*l.* for drawings of buildings or artistic objects in museums. Now the judges have a difficult task to choose between such diverse objects as their programme admits. For example, this last year the prizes were awarded to (1st) Miss Winifred Baker for some rather hard drawings of birds; (2nd) Miss Dorothy C. W. Venning for some excellent water-colours of pottery; and (3rd) Mr. W. L. Pickford for rather slight drawings of ironwork. We know that "artistic" is a word of such quality that it



Plans of Shops, Golder's Green.

Mr. W. Sydie Dakers, Architect.

embraces nearly everything; but why the birds of the air? It is admittedly a difficult problem to judge between diverse work, and we must leave it, then, to the discrimination of the assessors.

A fair percentage of the exhibition consists in sketches or measured drawings of architecture, but this seems to be a weak subject, judging from the standard. There are, however, some good drawings by Mr. McDonald Gill (1904) and Mr. T. Braddock (1907). Some of the water-colours of the latter are extremely clever. In the geometric drawings there seems to be a lack of style—of clear, lucid, incisive draughting of what is always a very concrete object. After all, a measured drawing is intended to glorify the original artist, not the draughtsman. If this is realised much is gained and the meretricious will probably be omitted. In some of the Council exhibitions we have seen from time to time fine specimens of lettering. Why cannot the architectural draughtsman learn from them and at least make the printed title to his drawing decorative and at the same time legible?

There are some good drawings of stained glass, the work of Mr. Edward Moore (1901), Miss Eva Dunn (1908), and Mr. G. C. L. Underwood (1910). Unlike the architectural work, these drawings are done with complete understanding, and considerable skill is displayed, both in the actual drawing and the colouring. It is, of course, extremely difficult to give an adequate impression of glass, transparent and full of light as it is, but this work certainly succeeds. Eastern pottery offers a rich field in the way of colour, and these students have not been slow to recognise it, and some very delightful water-colour drawings are the result. Miss Kate Richardson (1904), Miss Irma C. Alexander (1905), Miss Eveline L. Quainton (1909) show work of this kind, which, curiously enough, maintains an even standard of excellence in technique. This is, of course, unusual where so much depends on the individual. It seems to point out special diligence and ability on the part of the teacher. Mr. Vincent Freudernachter (1909) is the author of a fine water-colour drawing of a Turkish lamp, quite up to the high standard of the others. Some other subjects are equally well presented. For example, Mr. Charles E. Whittingham's (1907) drawings of a pastoral staff and a bronze fountain representing "Perseus and the Medusa" are good; again, a little XIIIth-century shrine, drawn by Miss Ella Champion (1905), is remarkable for its easy and accurate technique. Then Miss Lilian J. Pocock is the author of drawings of a pastoral staff and beaker of considerable beauty.

One could go on enumerating several other works. We have mentioned a few of the better ones, which must suffice. Whatever else is lacking, it is evidently not want of proper direction, for there is no drawing of an inferior work of art. Evidently it is a dearth of individual ability which militates against a higher standard.

QUESTIONS IN PARLIAMENT.

St. Paul's Cathedral.

Mr. Cathcart Wilson asked the Prime Minister on Monday if he was aware of the anxiety caused by the proposals of the London County Council to construct important works in the neighbourhood of St. Paul's Cathedral, and the Report of Sir Francis Fox thereon; and whether, in view of the national and material interests centred in the Cathedral, he proposed to institute any inquiry into the matter.—Mr. Asquith replied that there appeared to be no necessity for such an inquiry since those responsible for the safety of St. Paul's Cathedral were fully alive to the danger, and the sanction of Parliament would have to be obtained for the works referred to.

Buckingham Palace.

Mr. Benn has informed Mr. Touche that as at present arranged the refronting of Buckingham Palace will be commenced on August 1 and will be completed about the end of October.

The New Delhi.

Mr. King further asked the Under-Secretary of State for India whether the Government of India or the India Office had consulted Mr. J. Begg, the Consulting Architect of the Government of India, on the plan and architecture of the new Delhi, and, if so, whether any report by him would be published; and, if he had not been consulted, whether he would be called on to report on the practicability of employing Indian architects and craftsmen in constructing the new capital.—Mr. Baker answered that in the ordinary course of business the Government of India would take the opinion of their Consulting Architect on the proposed ground plan of the new capital, the designs for particular buildings, and the extent to which Indian craftsmen and designers could be employed. It was not usual to publish confidential reports of this kind, and he could not say what course would be followed in the present case.

In reply to a further question Mr. Baker said Mr. Begg had already been consulted.

Housing.

In the House of Commons on January 1 Mr. Royds asked the Chancellor of the Exchequer whether in view of the fact that in the year 1905–6 the number of dwelling-houses in Great Britain under the annual value of 20*l.* increased by 112,838, and that the average annual increase in the four succeeding years was over 80,000, he would explain why the increase in the number of such houses in the year 1910–11 was only 10,651; and whether, having regard to the urgency of the housing problem, he would cause an immediate inquiry to be made into the subject.

Mr. Masterman, who replied, agreed that the figures quoted were correct as given in the last report of the Inland Revenue Commissioners, and stated that the fall in the rate of increase was very largely due to the fact that 1910–11 was a year of new valuation—the first since 1903–4. Somewhat similar falls had invariably followed the periodical revision of the assessments.

Answering a further question, Mr. Masterman declined to accept the suggestion that the building of cottages and small houses were arrested with the passing of the "People's Budget," and pointed out that last year the unemployment in the building trade was lower than at any time during the present century.

Archæological Survey of India.

Mr. King on Tuesday asked the Under-Secretary of State for India whether the Government of India had undertaken, through the Archæological Survey of India, to collect illustrations and statistics relative to modern Indian architecture and buildings; and, if so, when the material so collected would be available.—Mr. Baker replied that under the Standing Orders issued in 1911 if the Government Archæological surveyors while on tour photographed any interesting types of modern Indian buildings, and noted the names, rates of remuneration, etc., of the principal craftsmen, inquiry would be made as to when and in what form material thus collected would be made available.

Housing Scheme for Kilrush.

Questioned by Mr. Lynch, Mr. Birrell has stated that the question of a loan for a housing scheme in Kilrush must be deferred until attention is given to the water supply of the whole urban district. The Council had the remedy in their own hands, and the sooner they provided a water supply the sooner the question of a housing scheme would be considered.

Sewage Disposal.

Mr. John Burns informed Mr. Tyson Wilson that he has a Bill in preparation dealing with the subject of the reception and disposal of trade effluent as recommended by the Royal Commission on Sewage Disposal.

Labourers' Cottages in County Clare.

Mr. Birrell has also informed Mr. W. Redmond that up to the present 1,048 labourers' cottages have been erected in County Clare and ninety-five are in course of construction.

ELECTRICAL SHOCKS.

It should be realised by everyone having occasion to handle electrical apparatus that the human body is a conductor through which current will flow if made part of a circuit, the amount of current that passes being dependent upon the completeness of the contact.

A mild shock may be received from a circuit of 100 volts, an unpleasant one from a circuit of 200 volts, and severe shocks from circuits of higher pressure.

If standing upon a perfect insulator, a man could touch with one hand a bare conductor conveying current at high voltage without experiencing any shock, because current could not flow through his body in the absence of an outlet. But if the other hand were in contact with anything capable of acting as a conductor, the circuit would be completed, and shock would naturally occur.

It must be remembered, moreover, that a perfect insulator does not exist, although various substances may be regarded as such for practical purposes. The need for general precautions, and for inquiry into the efficiency of insulating media, obviously increases with the voltage of the circuit to be dealt with.

Shocks are often due to contact with parts of electrical machines or apparatus that are not intended to convey current, but have become charged owing to a fault in the insulation, or by the contact of a live conductor. Thus the frame of a motor or the casing of a switch may be as dangerous as a bare conductor.

Therefore, before commencing to handle electrical apparatus of any kind, it is always desirable to shut off the current at the main switch, or at the switch controlling the circuit on which the apparatus is placed.

If, however, the current cannot be cut off, or if apparatus has to be adjusted when in operation, protective appliances must be used.

Perfectly dry boards, without screws, nails, or other metal, may be used to stand upon. Indiarubber gloves and dry leather gloves without metal fastenings are both reliable, but are of little or no use if the indiarubber is worn, or if the leather is damp from perspiration or other causes.

Indiarubber shoes free from nails will afford protection so long as they remain in good condition, but are of little use when cracked or worn. Any tools used should have dry wooden handles, or be protected by indiarubber tape very carefully applied.

As an additional precaution, only one hand should be employed at a time, so as to avoid the risk of a circuit being established from one hand to the other.

In the ordinary way, however, the proper course is to make sure that current is absolutely shut off before handling any electrical apparatus from which shock may be anticipated.

COOKING BY ELECTRICITY.

The advantages of electricity for cooking and heating have long been proclaimed, but for various reasons they have not been widely availed of in this country. In the first place, we are slow to depart from methods with which we are familiar in order to put into practice others of which we know little, even though we pay dearly for our ignorance; and, secondly, the idea prevails that electricity is a luxury, and that only the wealthy can afford to cook their meals and warm their houses with its aid.

With electricity at 1d. per unit, much may be accomplished in the way of clean, healthy cooking, and a visit to Tricity House, 48, Oxford-street will be something of a revelation to those who are accustomed to nothing better than the ordinary cooking-range. This is the first public restaurant in London to use electricity throughout for all lighting, heating, cooking, and other domestic uses, and a demonstration of the electric cookers and utensils used impresses the lay mind no less than the architect's. The saving of space, the freedom from dirt, the avoidance of an overheated and noxious atmosphere are all noticeable, while the use of a system so easily regulated, under such perfect control and so safe, cannot fail to make its appeal. The elimination of the huge kitchen range and the substitution of gas or electric cookers will in time revolutionise the planning of the domestic kitchen in this country, while one of the most formidable contributors to the smoke nuisance will be removed. Architects will be well advised to acquaint themselves of the altered conditions which the substitution of electricity for the older methods of cooking will bring to bear on the planning of houses, and at Tricity House much can be seen. The building has been extensively altered to suit it for its new purpose, the ground-floor story in particular striking a light and graceful note quite in keeping with its use. This rearrangement and the design of the entrance-front were entrusted to Mr. G. Blair Imrie, the architect to Modern Kitchens, Ltd.

TESTS OF YELLOW PINE.

SUPPLEMENTING our recent article on Australian hardwoods, we now give some data furnished by tests of American long-leaf yellow pine. The tests in question were conducted by Mr. H. B. MacFarland for the American Railway Engineering Association, and their object was to investigate fully the effect of the full-cell creosote treatment. It should be noted, however, that the results obtained apply equally to both treated and untreated timber.

Full particulars relative to the selection of specimens, the creosoting process, and testing procedure are to be found in a bulletin published by the Association.

The test specimens measured 7 in. by 16 in. by 28 ft., and the average results obtained were as follows:—

Particulars.	Treated.		Untreated.	
Transverse Tests.	1911*	1912†	1911*	1912†
Elastic limit (lb. per square inch)	4,240	4,305	4,260	3,850
Modulus of rupture (lb. per square inch)	4,980	5,263	5,160	4,750
Modulus of elasticity (lb. per square inch)	1,600,000	1,544,700	1,595,000	1,554,500
Deflection at failure (inches)	1·12	1·17	1·15	1·18
Maximum horizontal shear (lb. per square inch)	408	414	415	377
Compression Tests (Parallel to Grain).				
Elastic limit (lb. per square inch)	4,770	5,553	4,920	5,075
Modulus of elasticity (lb. per square inch)	568,000	633,000	621,000	529,400
Maximum load (lb. per square inch)	5,650	6,440	5,750	5,918
Deflection for 2,000 lb. per square inch (inches)	0·052	0·041	0·049	0·051
Compression Tests (Perpendicular to Grain).				
Elastic limit (lb. per square inch)	1,040	945	1,031	986
Load in lb. per square inch for deflection of $\frac{1}{10}$ inch	711	1,058	727	684
Load in lb. per square inch for deflection of $\frac{2}{10}$ inch	1,107	1,340	1,120	1,052
Load in lb. per square inch for deflection of $\frac{3}{8}$ inch	1,540	1,691	1,530	1,483

* Average of 26 tests. † Average of 32 tests.

FACTORY AND COMMERCIAL PROPERTY SALES, 1912.

MESSRS. LEOPOLD FARMER & SONS, surveyors, auctioneers, and factory specialists, of Gresham-street, London, E.C., send us the following communication on factory and commercial property sales during the past year:—

"We are pleased to report that the sales and letting of factory property, wharves, land, etc., in the year under review show better results than was the case in 1911, the boom in trade in the industrial world having given a great impetus to the development of new industries, and the consequent establishment of new works. Prices have been maintained and sales transacted at good times prices. They would not, however, convey to the reader that the standard of values has been kept up, as hardly two factory properties are alike. The tendency, however, is for the price to rise consequent on the improvement by development in certain manufacturing areas which have special advantages in rail, waterside, and other facilities, but the migratory movement amongst manufacturers is to districts outside large towns where the lowest possible cost of manufacture can be obtained. The values of industrial properties have not, to any great degree, been affected by the Budget Taxation of 1909, but as regards other securities in landed property a shrinkage is noticeable.

It is difficult to say which branch of any particular manufacture more than any other has progressed in the year 1912, as there are many influences affecting industrial operations and the development of commercial enterprise. Acquiring of factories, etc., building of works consequent on reorganisation and extension in many trades are always in progress. Owing to the flourishing state of trade, great developments have taken place in the year under review, especially in the following:—Engineering, milling, chemical, spinning, motor, and rubber trades.

The effects of the Patents and Designs Act are still well to the front, a sum amounting to about 1½ millions having been expended in the acquiring of land, building of factories and plant and machinery equipment, and the consequent employment of some thousands of workpeople.

Foreign holders of English patents are still on the look-out for factory property to comply with the requirements of the Act, and several areas in and around London and the Provinces have been developed in consequence of the establishment of important industries which give employment to thousands, additional rates to local and other attendant authorities. The outlook ahead for further deals in factory property is good, as there is every likelihood of a continuance of prosperous activity in the industrial world."

BUILDING MINERALS OF THE NATION.

MR. R. A. S. REDMAYNE, the Chief Inspector of Mines, has presented the third part of his annual Report to the Home Office on the mines and quarries of the country, which deals with the output of minerals during 1911. Of the minerals used more particularly in building works, it is stated that North Wales furnishes most of the slate. The two largest open workings are the Penrhyn Quarry, near Bangor, and the Dinorwic Quarry, near Carnarvon. The largest underground workings are those belonging to the Oakeley Slate Quarries Company, at Festiniog, with an output of 29,486 tons. The total output of slate for the whole country was 425,125 tons, of the value of 1,050,667*l*. Roofing slates of the value of 101,701*l*., were exported during the year.

A little chalk is raised from mines, but the total quantity is insignificant compared with the output of the open quarries. Kent is by far the most important chalk yielding county, and much of the chalk in Kent and Essex is employed in the manufacture of Portland cement at works on the banks of the Thames and Medway. The total output for the country was 4,884,020 tons, valued at 199,573*l*.

Many of the workings for clay and brick-earth are less than 20 ft. deep, and so escape the operation of the Quarries Act, under which returns are compulsory, and, therefore, the figures given, viz., 13,835,038 tons, of the value of 1,758,466*l*., do not include the whole output. The same remark applies to gravel and sand, the output of which is given at 2,275,177 tons, valued at 172,214*l*.

Under the heading of "Igneous Rocks" are grouped together various kinds, such as granite, syenite, diorite, basalt, etc., principally used for making road metal and paving stones. Leicestershire, with its large quarries in Charnwood Forest, is by far the largest producer of granitic rocks, and Aberdeenshire and Cornwall are both remarkable for their granite, which is employed for building and monumental purposes. The total output of all kinds of igneous rocks was 6,524,696 tons, of the value of 1,241,967*l*.

Limestone (exclusive of chalk) was produced to the extent of 12,183,355 tons, valued at 1,268,853*l*.; and sandstone to the extent of 4,044,907 tons, valued at 1,194,420*l*.

FATAL FIRE IN ISLINGTON.

MR. WALTER SCHRODER lately held an inquest at the Islington Coroner's Court into the circumstances attending the death of four persons.

Mr. J. W. Godfrey watched the proceedings on behalf of the London County Council.

The police and officers of the Fire Brigade gave evidence of their quick arrival, the fire-station being quite close.

Mr. Henry Lovegrove, District Surveyor, said that he inspected the premises on the morning of the fire. In May last he reported to the London County Council that the premises were not in accordance with sect. 12 of the London Building Act (Amendment) Act, 1905, and on September 28 he was informed that the Council had sent a warning letter to the owner, but nothing had been done. He could not be sure that the family on the upper floor could have escaped if the trap had been completed, but it was possible.

Mr. A. M. Phillips, of the Superintending Architect's Department, stated that the neglect to comply would have been shortly reported to the Council.

The jury returned a verdict of "Accidental death."

LEGAL COLUMN.

Landlord and Tenant.

Sometimes questions which appear quite clear become the cause of litigation. In a recent case, in *re* Sturmey Motors, Ltd., (current "Law Reports"), the contention was set up that, under the usual covenants in a lease to pay the rent and all rates and taxes, land tax and landlord's property tax excepted, the lessee, who, under the provisions of the Income Tax Acts, has paid the land tax and landlord's property tax can only deduct them from the next payment of rent or not at all.

The judge of the Chancery Division held that this contention was wrong, and that the sums paid for landlord's taxes could be deducted from the amount of rent due, not limited to any quarter, year, or other particular period.

In the case in question the facts were somewhat complicated because the lessees were a company, and a Receiver had been appointed on the application of debenture holders, and the Receiver, in consideration of the lessors abstaining from levying a distress or re-entering the premises, had entered into a special undertaking. Although this undertaking was what had to be considered by the Court, this in no way affected the general application of the above ruling, which is of interest to all tenants.

Water Supply in Rural Districts.

A summons recently considered by the County Magistrates at Sittingbourne draws attention to the provisions of the Public Health (Water) Act of 1878. Sect. 6 of that Act provides that it shall not be lawful in any rural district for the owner of any dwelling-house erected, or pulled down to the ground floor and re-erected, after the commencement of the Act, to permit the same to be occupied until he has obtained from the sanitary authority of the district a certificate that there is within a reasonable distance of the house such an available supply of wholesome water as may appear to such authority, on the report of their Inspector of Nuisances or of their Medical Officer of Health, to be sufficient for the consumption and use for domestic purposes of the inmates of the house. There is an appeal from the refusal of a certificate to a Court of summary jurisdiction. In the case in point, according to a report in the *Times*, the house in question had been erected on a building estate some distance from the local waterworks, and owners of two houses had been prosecuted for occupying them in contravention of the above section. The summons was taken out by an owner of a house against the Rural District Council, this being the form of appeal provided by the section. The supply of water appears to have been only rainwater collected and filtered, and it only allowed 5 gallons per head of the inmates, as compared with 20 gallons allowed in the district. The Bench dismissed the summons, *i.e.*, refused to authorise the occupation of the house in the absence of the certificates; but it does not appear whether this was done in consideration of the nature of the supply or on account of its limited quantity. Presumably the latter consideration was the reason for the decision.

LONDON COUNCILS.

Battersea.—The carriageways of Dickens-street and Frances-street are to be repaired with granite macadam at an estimated cost of 257*l*. The attention of the London County Council is to be drawn to a letter from the Borough Surveyor with regard to a request from a District Surveyor for notice to be given him for the brick pits recently constructed in connexion with electric-light mains. At the same time the County Council are to be informed that the Borough Council are of opinion that electric boxes and similar constructions should be exempt from the provisions of the Buildings Acts, and that the time has now arrived when all the District Surveyors should be paid by salary, and the present method of paying by fees entirely abolished. Plans have been passed for Mr. E. Hazell, for alterations at the "Butchers' Arms" beer-house, New-road; also for Messrs. Lovegrove & Papworth, for rebuilding three shops in Clapham Junction-passageway. Mr. G. P. Thwaites has lodged plans with the London County Council for the erection of a building upon the site of Nos. 184, Battersea Bridge-road and 2, Surrey-lane.

Greenwich.—The Borough Surveyor estimates the cost of paving a portion of Thornley-place at 110*l*.

Hackney.—The footways in Bushberry-road are to be repaved (except in such parts where the work has already been carried out) with new concrete, laid *in situ* to a depth of 1½ in.

on the existing concrete foundation; the kerbs taken up and reset with a bed and backing of 6 in. of Portland cement concrete; and the channels alongside the kerbs paved with four courses of old granite setts, laid on a bed of 6 in. of Portland cement concrete, at an estimated total cost of 140*l*. Electricity mains are to be extended in various parts of the district at a total estimated cost of 629*l*. The following plans have been passed:—Messrs. J. Hamilton & Son, on behalf of Messrs. O. & L. Chillingworth, twenty-two houses, Cleveleys-road, Upper Clapton; Messrs. Stephen Hayworth & Sons, four houses, Bay-street, Dalston; Mr. A. Cunnington, factory, rear of 62, Well-street; Messrs. J. Chessum & Sons, London County Council school, Lansdowne-road. The following have lodged plans with the London County Council:—Mr. S. A. S. Yeo, on behalf of Dr. Durno, surgery, at No. 122, Stamford Hill; Mr. J. Shea, on behalf of Dr. Roland Smith, surgery, rear of No. 129, Lower Clapton-road; Messrs. Joseph & Smithem, synagogue, etc., Rookwood-road; Messrs. J. Hamilton & Son, on behalf of Mr. T. C. Wootton and Mr. E. C. Barlow, buildings, Sutton-place.

Leyton.—In connexion with the widening of High-road, Leytonstone, the Surveyor has been requested to carry out paving works at an estimated cost of 140*l*. A plan has been passed for Mr. J. Ewens for the erection of five shops in Grange-road.

Southgate.—At the last meeting of the Town Planning Committee of the Urban District Council the entire subject of town planning of the district was considered, and instructions were given for the list of owners and occupiers to be completed in order that the Local Government Board might be interviewed to discuss the further steps to be taken. The tender of Mr. T. Adams has been accepted, at 1,229*l*., for making up Kelvin-avenue; as have also the tenders of Mr. A. Thompson, at 595*l*. and 483*l*., for making up parts of Chimes-avenue and Haslemere-road, respectively. The Surveyor has been instructed to at once prepare plans for the erection of cottages facing Highfield-road. The following plans have been passed:—Mr. F. E. Davis, twelve houses, Powys-lane, Palmer's Green; Mr. P. Hart, fourteen houses, Hamilton-crescent and Riverway, Palmer's Green; Messrs. Edmondsons, Ltd., five houses, Green-lanes, Winchmore-hill; Mr. H. C. Keene, thirty-two houses and motor garage, The Grove, Palmer's Green; Mr. W. Simmons, thirty-four houses, The Grove, Palmer's Green; Mr. W. J. Hampton, motor garage, Broomfield-lane, Palmer's Green; Mr. A. V. Greenfield, house and dancing academy, corner of Elm Park-road; Messrs. G. Baines & Son, Congregational church, corner of Fox-lane and Burford-gardens.

Stepney.—Messrs. Hood Brothers have been granted permission to reduce the size of the existing vaults at 181, Commercial-road, and to fix pavement lights thereover, subject to protective conditions. The Finance Committee have decided to acquire the "Crown and Anchor" public-house for the purpose of widening Brook-street, and the London County Council are to be requested to set back the roadway at Beechcroft-buildings, which adjoin the public-house mentioned, upon the condition that the Borough Council carry out the necessary pavement works consequent thereon. The portion of the purchase site not required for the improvement is to be let to Messrs. Barnes Brothers, blacksmiths, on a ninety-nine years' lease, the firm undertaking to erect a building and residence thereon at a cost of between 400*l*. and 500*l*. Sanction has been received from the Local Government Board to the borrowing of 3,600*l*. for the construction of conveniences.

Wimbledon.—Application is to be made to the Local Government Board for sanction to the borrowing of 4,000*l*. for the provision of an additional ward at the isolation hospital, and tenders are to be invited for the erection of such additions. The Borough Surveyor has been directed to prepare a plan and estimate of the cost of erecting a bandstand in South Park-gardens. Repairs are to be carried out to the carriageways and footways in various parts of the borough at a total estimated cost of 326*l*. Surface and foul water sewers are to be laid in Park-side and Queensmere-road at a cost not exceeding 283*l*. The Surveyor has been directed to prepare a plan and estimate of the cost of laying a surface-water sewer on the south side of Wimbledon Common. Concrete slab-paving is, subject to the usual sanction, to be laid on a portion of the western side of Hartfield-road at an approximate cost of 573*l*. A plan has been passed for Mr. C. H. Rhodes for alterations at "Winsford," Murray-road.

Woolwich.—Application is to be made to the Road Board for a grant to cover the estimated cost (13,000*l*.) of re-forming the main highway from Lee Green to Sidcup. The London County Council are to be informed that the Borough Council are prepared to carry out the paving work required in connexion with the widening of Church-street and High-street, and the reconstruction of the tramways at the actual cost of the work, plus 5 per cent. for supervision charges. A communication is to be sent to the London County Council urging the necessity of providing a tramway shelter in Beresford-square, and offering a site on the roof of the underground convenience thereat. A portion of Dallin-road is to be made up as a new street. Plans lodged by Mr. W. L. Cooke, 223, Clapham-road, Stockwell, S.W., for the erection of a factory in Cambridge-place, Plumstead, for the Oliver Arc Lamp, Ltd., has been passed. Mr. R. Stuart, 24, Sloane-square, S.W., has lodged plans with the London County Council for the erection of buildings in Elderslie-road, Greenholme-road, Glenesk-road, and Bexley-road.

TRADE CATALOGUES.

Messrs. Doulton & Co., Ltd., Lambeth, S.E., send us their new and comprehensive catalogue of drainage and building materials, comprising stoneware pipes and fittings for drainage and sewerage, manhole channels, sewer-gas interceptors, gullies, and grease interceptors, cast-iron manhole covers, chimney-tops, cattle troughs, and sundries. The attention of architects should be directed to the "grouted composite" joint for stoneware pipes, which Messrs. Doulton have introduced to obviate the disadvantages of the closed annular chamber type of joint, where it is always a matter of uncertainty whether the grout has flowed completely round the joint. In the grouted composite joint the outer wall of the sealing-chamber is of porous fabric, which performs the work of a filter-cloth, permitting the escape of air and superfluous water, and retaining solid particles of cement. A perfectly solid ring of cement is assured, and it is, moreover, actually visible. The joint is used in conjunction with Doulton's self-adjusting joint. An illustration of concrete walling faced with Cockrill-Doulton tiles form another interesting feature of the catalogue. These tiles have a horizontal flange at the back, and the operation of building is performed by laying a course of tiles on each face of the wall, and filling the intermediate space with soft concrete, the weight of which, on the horizontal flange, keeps the tile in a vertical position. This operation is repeated course by course. Walls built on this system are monolithic and waterproof, and a glazed surface is then produced at a much lower cost than with glazed brick. A pumping-station, urinal, and shelter has recently been built on this principle at Great Yarmouth.

Messrs. R. Jenkins & Co., Rotherham, send us their latest list of "O-Sho" domestic hot-water supply boilers. The "O-Sho" boiler is of relatively small size, compact in shape, and rapid and effective in heating power. The distinctive features in its construction, which, it is claimed, gives it a superiority over the existing types of independent boilers, are the following:—The boiler is especially compact, being of horseshoe shape on plan, with a flat front. The damper is on the top at the front, and the feed door will admit an ordinary kitchen shovel at the mouth of a scuttle, and there is a removable ashpan. Rapidity of heating is gained by a wedge-shaped water-pocket projecting right over the fire, and by the direct contact of the flames with the sides and top. The fire-front is recessed in such a manner that there is no waterway over the fire-door opening, thus obviating the risk of incrustation and of burning out over the first door, to which boilers with a waterway in this position are liable. Three or four Mudlicks are provided to facilitate cleaning. The boiler is made of best quality Siemens-Martin mild steel and best Staffordshire iron boiler-plates. For districts where the water is of an acid nature, the Z pattern, with a copper interior, is supplied. Two such boilers were fixed in September, 1911, in a public institution where 600 gallons of water at 180° Fahr. were required per hour, and have since given thorough satisfaction.

We have received from Messrs. John M. Henderson & Co., of Aberdeen, their latest lists of hand derrick (Scotch) cranes No. 35 and portable pneumatic stone-dressing machines No. 37. The hand derrick cranes are especially suitable for general building and contracting purposes, and serve the whole area within the range of the job. They are designed to lift from ½ ton to 15 tons. Cranes up to 5-ton size are usually in stock or progress. The firm supply portable and wharf cranes, chain-slings, and boxes, for cranes, cableways, etc., and gearing and mounting of every description. Messrs. Henderson's portable pneumatic stone-dressing or armour-sealing machines are economical, compact, and easily handled.

PATENTS.

APPLICATIONS PUBLISHED.*

25,388 of 1911.—James Garvie: Steam pile drivers.

27,255 of 1911.—Georges Chaumeret: Safety doors opening only from the interior.

27,594 of 1911.—Heinrich Gassmann: Apparatus for the construction of foundation piles.

28,111 of 1911.—Adair Douglas Blythe and Herbert Stroud: Fastening devices for windows and the like.

3,796 of 1912.—Alfred Mason: Water-closet seats.

6,102 of 1912.—Arthur John Howell, Harry Cocks, and Walter Leonard Lewis: Weather strip attachments for doors, windows, and such like.

7,843 of 1912.—Herbert Horace Holliday and Alexander Kay Steven: Domestic firegrates adapted to be used for either solid fuel or gas.

7,844 of 1912.—Herbert Horace Holliday and Alexander Kay Steven: Domestic firegrates adapted to be used for either solid fuel or gas.

7,872 of 1912.—Alfred Julius Boult (G. Wright and Seaton K. Milligan): Waterproof sheeting particularly applicable for roofing or like purpose.

8,001 of 1912.—Walter Turk: Manufacture of reinforced concrete and the like beams.

8,630 of 1912.—Victor Trevett: Devices for silencing or preventing rattling of window-sashes.

9,672 of 1912.—Michael Glaser: Building materials.

19,363 of 1912.—Albin Kuhn: Method of and apparatus for producing building bricks with a dense mass of perforations.

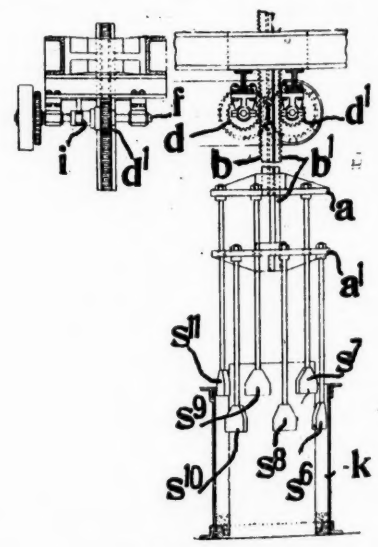
19,767 of 1912.—John George Glover: Means for extinguishing and preventing the spread of fire in buildings.

20,077 of 1912.—Alfred Riessberger: Door and like hinges.

SELECTED PATENTS.

18,608 of 1911.—Paul Schwenzow: Stamping cement tubes.

This relates to stamping machines for cement tubes and tuyeres, comprising a non-rotatable mould *k* and a number of stamps s^6, s^7, etc., occupying the whole of the mould space, the alternate stamps s^7, s^9, etc., being raised more quickly than the others to allow fresh material to enter the mould. The two sets of stamps are carried by two heads *a*, a^1, which are provided with rack-bars *b*, b^1, meshing with pinions *d*, d^1, carried by a pair of geared shafts *f*, and adapted to be coupled thereto by sliding clutches *i*. The pinion *d* is larger



18,608 of 1911.

than the pinion d^1, so that the head *a* carrying the stamps s^7, s^9, etc., is raised more rapidly, and the clutch *i* controlling this pinion is released first, so that the material, which becomes piled beneath the stamps s^7, s^9, etc., is spread more evenly. Each set of stamps may be raised to the greater height alternately, in which case the pinions *d*, d^1 are made of equal size, but are driven at different speeds through reversing-means, so that first one pinion and then the other is driven at the higher speed. The whole of the stamps may be carried by one head, one half of them being passed loosely through the head and raised more rapidly than the others.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointment, xvi.; Auction Sales, xxii. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

JANUARY 31. — **Hemel Hempstead.**—HOUSING SCHEME.— Premium 20*l.* Particulars from the Town Clerk, Hemel Hempstead. Deposit, 1*l.* 1s.

JANUARY 31.—**Jamaica.**—MUNICIPAL BUILDINGS. —To cost 9,000*l.* Premium 100*l.* Particulars from Messrs. Young, Ltd., 60, Fenchurch-street, E.C. (2s.)

FEBRUARY 3. — **Harrogate.** — SCHOOL. — The Harrogate Education Committee invite designs for a Council school in Skipton-road. See advertisement in issue of November 1, 1912, for further particulars.

FEBRUARY 4.—**Hayti.**—DESIGNS FOR A NATIONAL PALACE AT PORT-AU-PRINCE.—See "Competition News," December 20, 1912, page 748

FEBRUARY 15. — **Winnipeg.** — CITY HALL. — Limited to British architects in Canada. Assessor, Mr. Leonard Stokes, F.R.I.B.A.

FEBRUARY 22. — **Jordanhill, Glasgow.** — PROPOSED TRAINING COLLEGE.—Limited to six firms, named in "Competition News," December 1, 1911, page 635.

* FEBRUARY 26. — **Bristol.** — DESIGNS FOR LUNETTES.—The Academy of Fine Arts, Bristol, invite competitive sketch designs for painted figure compositions to fill four segmental lunettes under the dome of the Academy. See advertisement in this issue for further particulars.

MARCH 1.—**Rangoon.**—MUNICIPAL BUILDINGS.— The Committee of the Municipality of Rangoon invite designs for the new Municipal Buildings. Honoraria of 300*l.*, 200*l.*, and 100*l.* respectively for first, second, and third. See advertisement in August 2 and 30, 1912, for further particulars.

MARCH 1.—**Sofia.**—DESIGNS FOR A ROYAL PALACE AND LAW COURTS.—Particulars from the Commercial Intelligence Branch of the Board of Trade, Basinghall-street, E.C. See page 173, August 9,, and page 350, September 27, 1912.

JULY 10. — TOWN-PLANNING SCHEME. — Promoted by the Institution of Municipal and County Engineers. Premiums, 10 guineas, 7 guineas, and 5 guineas.

NO DATE.—**Folkestone.**—PROPOSED KURSAAL.— Cost not to exceed 20,000*l.* Premiums 100, 50, and 25 guineas. See "Competition News," page 542, November 8, 1912.

NO DATE.—**Motherwell.**—HIGH SCHOOL.—Dr. Burnet, assessor. Premiums 50*l.*, 30*l.*, and 20*l.*

NO DATE. — **Worthing.** — NEW CHURCH.— Sketch plans are invited for a church to be erected in South Lancing, to cost, when completed, from 4,000*l.* to 5,000*l.* See advertisement in issue of December 13, 1912, for further particulars.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JANUARY 10.—**Mallow.**—COTTAGES.—For building of thirty-nine single cottages. Plans and specifications at the office of the Council.

JANUARY 11.—**Helston.**—SCHOOL.—For extension of the school. Plans and specification with Mr. Sampson Hill, Architect to the Committee, Green-lane, Redruth.

JANUARY 11. — **Southmolton.**—COTTAGES.—For the erection of ten workmen's cottages. Plans and specifications with Mr. H. C. E. Rayner, Borough Surveyor.

JANUARY 13. — **Balmoral.** — SIGNAL-BOX. — The Great Northern Railway Company (Ireland) invite tenders for the erection of a signal-box adjoining the railway near Balmoral Station. Drawing and conditions at the Engineer's Offices at Dublin and Belfast, and quantities from Mr. T. Morrison, Secretary, Secretary's Office, Amiens-street Terminus, Dublin. Deposit of 1*l.* 1s.

JANUARY 13.—**Beckenham.**—SHED, ETC.—For erection of weather-boarded and tiled potting-shed, office, etc., with brick foundations, for greenhouses at Kelsey Park, Beckenham. Plans and sections seen, and specifications and forms of tender from Mr. J. A. Angell, Surveyor. Deposit of 10s.

JANUARY 14.—**Littlehampton.**—BUILDINGS.— For erection of destructor buildings, engine-house, etc. Drawings and specification seen, and quantities, with form of tender, from the Engineer, Mr. H. A. Johnson, M.Inst.C.E., 15, The Exchange, Bradford, on deposit of 1*l.* 1s.

JANUARY 14.—**Watford.**—ADDITIONS.—For additions to the day nurseries at the Union House. Drawings, specification, form of tender, and quantities from Mr. W. H. Syme, F.R.I.B.A., architect, Vicarage-road, Watford. Deposit of 1*l.*

JANUARY 15. — **Consett.** — ALTERATIONS. — For alterations and improvements to twenty-two cottages at Derwent Cottages, near Consett, Co. Durham. Plans and specification with the architect, Consett Ironworks, Consett.

JANUARY 15.—**Edinburgh.**—DEMOLITION.—For the demolition of certain old properties at the corner of Restalrig and Portobello roads. Plans, specification, and schedule of measurement by the Burgh Engineer, Mr. A. Horsburgh Campbell, M.Inst.C.E.

JANUARY 16.—**Glamorgan.**—COTTAGES, ETC.— For one cottage, outbuildings, repairs, and adaptation of existing buildings. Plans and specification seen, and form of tender at the County Land Agent's Office, Glamorgan County Hall, Cardiff, and at the Police-station, Caerphilly.

JANUARY 16. — **Prestwich.** — PARTITION.—For erecting a large iron and glass partition in the boiler-house at the Booth Hall Infirmary, Charlestown-road, Blackley. Specifications at the Infirmary.

JANUARY 17.—**Barrow.**—ALTERATIONS.—For certain alterations to the branch office, in Duke-street, Barrow, of the Bank of Liverpool, Ltd., and for additional counter and office fittings. Specification seen, and quantities from Mr. Henry T. Fowler, A.R.I.B.A., architect and surveyor, 6, Cornwallis-street, Barrow-in-Furness.

JANUARY 17.—**Guildford.**—ADDITIONS, ETC.—For the additions and alterations to the fire-brigade station, North-street. Plans and specification seen, and form of tender from Mr. C. G. Mason, A.M.Inst.C.E., Borough Surveyor, Tuns Gate.

JANUARY 17.—**Potten End.**—COTTAGES.—For the erection of a row of four cottages at Potten End, Berkhamsted. Drawings and specification with Mr. John Weall, Surveyor, 38, High-street, Watford.

JANUARY 18.—**Cushendall.**—CHURCH.—For the erection of new church at Cushendall, Co. Antrim. Plans and specification with Mr. W. J. Moore, architect, 35, Royal-avenue, Belfast, and quantities from Messrs. W. H. Stephens & Sons, 13, Donegall-square North, Belfast, on deposit of 2*l.* 2s.

JANUARY 18.—**Morton.**—REPAIRS, ETC.—For alterations, additions, and repairs to exisitng buildngs at Green Bank Farm, Moston, near Sandbach. Plans seen, and specfications from the County Estate Office, 49, Northgate-street, Chester.

JANUARY 20.—**Blackwood.**—HOUSES.—For the erection of twenty-four or more houses at Oakdale Village, near Blackwood, Mon., for the Oakdale Village Building Club. Plans and specifications from Mr. A. F. Webb, M.S.A., architect and Surveyor, Backwood, Mon.

JANUARY 20.—**Blackwood.**—VILLAS.—For the erection of six or more semi-detached villas at Blackwood, Mon., for the Pantwyn-road Building Syndicate. Plans and specifications with Mr. A. F. Webb, M.S.A., architect and surveyor, Blackwood, Mon.

JANUARY 20.—**Chester.**—HOSPITAL, ETC.—For new buildings, comprising isolation hospital, mortuary, workshops, and cottages. Plans and specifications with Mr. H. Beswick, F.R.I.B.A., County Architect, Newgate-street, Chester. Deposit of 3*l.*

JANUARY 20.—**London.**—CLINIC.—For erection of a school clinic at the Balaam-street Council School, West Ham. Mr. W. Jacques, A.R.I.B.A., 2, Fen-court, Fenchurch-street, E.C. Specification and form of tender on deposit of 1*l.*

JANUARY 21.—**Birmingham.**—EXCAVATING.—For excavating, levelling site, and concrete foundations for Birmingham new telegraph factory. Drawings, specifications, and conditions and form of contract with Mr. J. Tosh, H.M. Office of Works, Paradise-street, Birmingham. Quantities and forms of tender at H.M. Office of Works, Storey's-gate, London, S.W., on deposit of 1*l.* 1s.

JANUARY 21.—**Gorleston.**—HOSPITAL, ETC.—For building a new Receiving Home, Hospital, and a new room at the Hollies, Clarence-road, Gorleston, and installing electric light throughout. Drawings and specifications with the architects, Messrs. Olley & Haward, Queen-street, Great Yarmouth. Deposit of 1*l.*

JANUARY 21.—**Hereford.**—BRIDGE.—For the construction of a bridge over the Sapey Brook, two miles from Knightwick Station, in the Bromyard Rural District. Plans and particulars at the County Surveyor's Offices, Shire Hall, Hereford, and forms of tender on deposit of 2*l.* 2s.

JANUARY 21.—**North Stockton.**—OFFICES, ETC.— The North-Eastern Railway Company invite tenders for the erection of yardmaster's offices, cabins for shunters, etc., in the goods marshalling yard, North Stockton. Plans and specification seen, and quantities and information from Mr. William Bell, the Company's Architect, at York.

* JANUARY 21.—**Tonbridge.**—BRIDGE WIDENING. —The Kent C.C. invite tenders for widening of Great Bridge, Tonbridge. See advertisement in this issue for further particulars.

JANUARY 22.—**Goole, etc.**—SHEDS, ETC.—The Lancashire and Yorkshire Railway invite tenders for construction of a new goods shed at Goole Docks; re-erection of a shed at Beverley Sidings, Goole; removal of excavation for marshalling sidings, construction of bridge, diversion of road, etc., at Healey Mills, Horbury. Plans seen, and tenders, quantities, and specifications at the Engineer's Office, Hunts Bank, Manchester.

JANUARY 22.—**Leeds.**—WORKS.—For extensions and improvements to Hunslet Carr Council School, and Cross Flatts Park Council School. Quantities and forms of tender from the Education Department (Architect's section), Calverley-street, Leeds.

JANUARY 22.—**Manchester.**—OFFICES.—For the erection of goods offices at Oldham-road goods yard, Manchester. Plans and specification seen, and quantities and form of tender from Mr. Henry Shelmerdine, architect, Hunts Bank, Manchester.

JANUARY 23.—**Rainhill.**—WARD, ETC.—For the erection of a new ward, and alterations to the annexe laundry at Asylum. Deposit of 1*l.* 1s. for plans. Specifications inspected, and quantities from the architect, Mr. Regd. Wainwright, George-street, St. Helens.

JANUARY 23. — **Wesham.** — FIRE-STATION.—For the erection of a fire-station in Wesham. Plans seen, and tender forms from Mr. T. H. Maxwell, Ribby-road, Kirkham. Deposit of 2*l.* 2s.

JANUARY 24.—**Redditch.**—CENTRE.—For the erection of a cookery and handicraft centre in West-street, Redditch. Drawings with the architect, Mr. A. V. Rowe, 30, Foregate-street, Worcester.

JANUARY 24.—**Wakefield.**—ADDITIONS, ETC.— For alterations and additions to Wombwell Park-street Council School. Plans seen, and specifications, with quantities, from the Education Architect, County Hall, Wakefield. Deposit of 1*l.*

* JANUARY 25.—**Harrow-on-the-Hill.**—PUBLIC OFFICES.—The Harrow-on-the-Hill U.D.C. invite tenders for new public offices. See advertisement in this issue for further particulars.

JANUARY 27.—**Aberdeen.**—ROOFS, ETC.—For the construction of reinforced concrete roofs and contingent works. Drawings, specifications, quantities, and form of tender from Mr. Cecil H. Roberts, Assoc.M.Inst.C.E., Water Engineer, Water Engineer's Office, 41½, Union-street, Aberdeen. Deposit of 3*l.*

* JANUARY 27.—**Billericay.**—ISOLATION HOSPITAL.—The Billericay R.D.C. invite tenders for alterations and additions to existing hospital and for new buildings. See advertisement in this issue for further particulars.

JANUARY 27.—**Hollybush.**—CHAPEL.—For the erection of a new Baptist Chapel at Hollybush, Mon. Plans, specifications, and quantities, on deposit of 1*l.* 1s., from Mr. A. F. Webb, M.S.A., architect and surveyor, Blackwood, Mon.

JANUARY 28.—**Penzance.**—SHED.—The Great Western Railway invite tenders for the erection of an engine shed and other works at Ponsandane, near Penzance. Plans and specification seen, and forms of tender and quantities at the office of the new works engineer, Paddington Station, London.

JANUARY 28. — **Worthing.** — SCHOOL.—For the erection of a new County High School for Girls on a site situated in South Farm-road, Worthing. Plans, specification, and conditions of contract seen, and quantities and form of tender from Mr. Haydn P. Roberts, F.R.I.B.A., County Education Architect, Worthing, on deposit of 2*l.* 2s.

NO DATE.—**Castleford.**—OFFICES.—For the erection of new premises, including shops, offices, workrooms, etc., in Carlton-street, Castleford, for the Castleford Co-operative Industrial Society, Ltd. Quantities from Mr. J. Philip Padgett, architect, Carlton-chambers, Castleford, on deposit of 1*l.* 1s.

NO DATE.—**Cottingham.**—COLISEUM.—Erection of Cosy Coliseum, King-street, Cottingham, Hull, for Messrs. Waddington & Gledstone. Specifications and quantities, on deposit of 1*l.* 1s., from Mr. John Abbott, architect and surveyor, 18, Newland-avenue, Hull.

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

✱ NO DATE.—**London.**—PICTURE PALACE.—Tenders are invited for a picture palace in London, to cost 2,100*l.* to 2,500*l.*, fully equipped. See advertisement in this issue for further particulars.

NO DATE.—**Maesteg.**—WORKS.—For the rebuilding of the Sawyers Arms Hotel, two shops, and a cinema theatre in Commercial-street, for the Maesteg Property Company, Ltd. Plans and specifications with Mr. W. H. Walker, architect and surveyor, Grenville-buildings, 12, Cherry-street, Birmingham. Quantities on deposit of 1*l.* 1s.

NO DATE.—**Stoke-on-Trent.**—FIRE-STATION.—For erection of new fire-station. Mr. A. Burton, Borough Surveyor, Town Hall, Stoke-on-Trent. Deposit of 2*l.* 2s.

NO DATE.—**Whitby.**—GARAGE.—For proposed garage, West Cliff, for Mr. A. H. Walker. Mr. Harold G. Walker, architect and surveyor, Whitby.

ENGINEERING, IRON, AND STEEL.

JANUARY 15.—**Greenock.**—WHARF.—For the renewal of the wharf on the west quay of the West Harbour. Plans seen, and specification and form of tender from Mr. R. Crawford, M.Inst.C.E., Engineer to the Trustees, Greenock. Deposit of 1*l.*

✱ JANUARY 18.—**Tottenham.**—HEATING APPARATUS.—The Tottenham Education Committee invite tenders for low-pressure hot-water heating apparatus at Downhills Junior Council School. See advertisement in this issue for further particulars.

JANUARY 20.—**Preston.**—STEELWORK.—For the supply and erection of steelwork at Deepdale Mill-street Bridge, over the Longridge Railway. Specification, quantities, and information from the Borough Surveyor, Town Hall, Preston. Deposit of 1*l.* 1s.

JANUARY 20.—**Preston.**—WALLS, ETC.—For the construction and erection of retaining walls, abutments, etc., at the Deepdale Mill-street Bridge, over the Longridge Railway. Specification, quantities, form of tender, and information from the Borough Surveyor, Town Hall, Preston, on deposit of 1*l.* 1s.

✱ JANUARY 21.—**Southgate.**—IRON FENCING, ETC.—The Southgate U.D.C. invite tenders for supply and delivery of 900 yds. of unclimbable iron fencing, and six hand gates to match. See advertisement in this issue for further particulars.

JANUARY 21.—**Tonbridge.**—BRIDGE.—For the widening of Great Bridge. Mr. Frederick W. Ruck, County Architect, 86, Week-street, Maidstone.

JANUARY 22.—**Norfolk.**—BRIDGE.—For the erection of a temporary bridge over the River Waveney, near Harleston, Norfolk, and for a smaller bridge over the adjacent watercourse on the Suffolk side. Particulars of Mr. H. Miller, M.Inst.C.E., County Bridge Surveyor, 16, Museum-street, Ipswich.

✱ JANUARY 23.—**Mile End, E.**—VENTILATION.—The Hamlet of Mile End Old Town Guardians invite tenders for ventilation at Nurses' Home, Bancroft-road. See advertisement in this issue for further particulars.

JANUARY 27.—**Ipswich.**—WORK.—For river work, etc., in connexion with extension to condenser circulating water supply, which includes the building of a concrete intake chamber in the bank of the branch of the River Gipping, etc. Specification, with quantities, form of tender, and drawing, from Mr. F. Ayton, M.Inst.E.E., Chief Engineer and Manager, Electric Supply and Tramways Departments, General Offices, Constantine-road, on deposit of 10s. 6d.

JANUARY 27.—**Saffron Walden.**—TOWER.—For the construction of a brick water-tower, with enclosed cast-iron tank. Plans and specification seen, and forms of tender from the Borough Surveyor, Mr. A. H. Forbes, Hill-street, Saffron Walden.

JANUARY 31.—**Ellesmere.**—MAINS, ETC.—For the laying of about 9,000 yds. of 4-in. and 3-in. cast-iron mains, together with the necessary sluice valves, fire hydrants, air valves, etc., in connexion with the Dudleston Heath water supply. Drawings seen, and specification and form of tender from the engineers, Messrs. Berrington, Son, & Watney, Prudential-chambers, Wolverhampton, and 28, Victoria-street, Westminster, S.W. Deposit of 3*l.* 3s.

FEBRUARY 8.—**Aberdare.**—BRIDGES.—For supply and erection of steel bridges, with abutments and approaches, and other works. Plans, specifications, and conditions of contract at the Surveyor's Office, Town Hall, Aberdare.

FURNITURE, PAINTING, MATERIALS, etc.

JANUARY 13.—**Chislehurst.**—STORES.—For the supply of stores. Mr. J. J. Brown, Clerk of the Council, Chislehurst.

✱ JANUARY 13.—**Hendon.**—MATERIALS, STORES, ETC.—The Hendon U.D.C. invite tenders for the rendering of certain services and supply of various materials and stores for one year from April 1 next. See advertisement in this issue for further particulars.

JANUARY 14.—**Liverpool.**—FLOORING.—For the laying of wood blocks and terrazzo flooring at Workhouse, Smithdown-road, Liverpool. Particulars and specification from the Master of the Workhouse.

JANUARY 15.—**Hull.**—PAINTING.—For painting, etc., the committee-room, dining-hall, day-rooms, and certain infirmary wards and classrooms at the Workhouse, Beverley-road, Hull. Forms of tender and specification from Mr. J. H. Wild, Clerk, 12, Harley-street, Hull.

✱ JANUARY 18.—**Tottenham.**—WOOD-BLOCK FLOORING, ETC.—The Tottenham Education Committee invite tenders for pitch-pine block flooring, roller window blinds, electric alarm bells, stoves, etc., to Downhills Junior Council School. See advertisement in this issue for further particulars.

✱ JANUARY 20.—**Kensington.**—PAINTING.—The Kensington B.C. invite tenders for painting the Tavistock-crescent footbridge. See advertisement in this issue for further particulars.

✱ JANUARY 24.—**West Ham.**—SUPPLIES.—The West Ham B.C. invite tenders for supplies, etc. See advertisement in this issue for further particulars.

✱ FEBRUARY 4.—**London.**—STORES AND WORKS.—The Metropolitan Water Board invites tenders for supply of stores and execution of works, etc., for twelve months ending March 31, 1914. See advertisement in this issue for further particulars.

FEBRUARY 5.—**Lancashire.**—PAINTING.—The Lancashire and Yorkshire Railway invite tenders for painting at Wapping goods station and Victoria-street offices, Liverpool, North Docks branch, &c.; Bank Hall to Waterloo Tunnel and Bankfield branch and goods station; Waterloo to Southport; Southport to Hillhouse Junction; Blackburn passenger and goods stations; Bury E.L. passenger station, Tottington branch, &c.; Rochdale to Facit; Salford goods station; Manchester, Rochdale-road Bridge to Thorpes Bridge and Osborne-street Stores; Miles Platting to Stalybridge, Ardwick and Beswick branches; Middleton Junction to Rochdale and Royton branch; Huddersfield and Penistone line and branches; Knottingley passenger station; Askern branch. Forms of tender and specification at the Engineer's Office, Hunts Bank, Manchester.

ROADS, SANITARY AND WATER WORKS.

JANUARY 11.—**Bourne.**—GRANITE.—For supply of about 6,000 tons of granite and 2,000 tons of slag. Mr. T. Lake, District Surveyor, Bourne, Lincs.

JANUARY 13.—**Derby.**—SEWER.—For laying of a 12-in. diameter sewer from Alfreton-road to Mansfield-road. General conditions, plan, specification, etc., seen, and form of tender and quantities from Mr. John Ward, M.Inst.C.E., Borough Surveyor, Borough Surveyor's Office, Babington-lane, Derby.

JANUARY 13.—**Whitehaven.**—PIPES, ETC.—For cutting trenches and removing about 800 yds. of 2-in. and 3-in. cast-iron pipes, for hauling, laying and jointing about 800 yds. of 3-in. and 4-in. cast-iron pipes, and fixing sluice valves, hydrants, and other fittings. Plan seen, and specification, quantities, and form of tender from the Engineer, Mr. George Boyd, C.E., 33, Queen-street, Whitehaven.

JANUARY 17.—**Carlisle.**—ROADS.—For the construction of diverting, widening, straightening, altering gradient, and metalling Blackwell-road (40 ft. wide by 1,510 yds. in length), and other work incidental thereto; fireclay sewers, manholes, etc. Plans with the Engineer to the Council, Mr. Joseph Graham, 28, Castle-street, Carlisle. Quantities on deposit of 2*l.*

JANUARY 17.—**Spilsby.**—GRANITE.—For the supply of about 5,000 tons of broken granite, 9,500 tons of broken slag, and 450 tons of slag chippings. Mr. Wm. Cooke Brakenridge, District Surveyor of Highways, Spilsby.

JANUARY 18.—**Essex.**—GRANITE.—For the supply of broken granite for the repair of the main roads. Mr. Percy J. Sheldon, M.Inst.C.E., County Surveyor, Chelmsford.

JANUARY 18.—**Grimsby.**—SEWAGE.—For the laying and construction of about ¼ mile of surface-water sewerage at Immingham. Plans, specifications, and conditions with Mr. A. Hobson, Engineer, St. Mary's Gate, Grimsby. Quantities on deposit of 1*l.* 1s.

JANUARY 18.—**Halifax.**—WORKS.—For private improvement works in Back Daisy Bank, Chester-grove, and back street between Chester-road and Chester-terrace. Plans and specifications seen, and forms of tender from Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax. Deposit of 1*l.*

JANUARY 18.—**Norfolk.**—FLINTS.—For the supply of gravel, flints, chalk, and marl. Particulars, specification, and tender forms from Mr. T. H. B. Heslop, M.Inst.C.E., County Surveyor, The Shirehouse, Norwich.

JANUARY 18.—**Tadcaster.**—MAIN.—For laying about 150 yds. of 3-in. water main in South Milford. Specifications and quantities from Mr. H. C. Wood, Sanitary Surveyor, Tadcaster.

✱ JANUARY 18.—**Tottenham.**—TAR-PAVING.—The Tottenham Education Committee invite tenders for tar-paving at Downhills Junior Council School. See advertisement in this issue for further particulars.

JANUARY 20.—**Banbury.**—STONE.—For one year's supply of Hartshill stone. Forms of tender from Mr. N. H. Dawson, C.E., Borough Surveyor, Town Hall, Banbury.

✱ JANUARY 20.—**Manchester.**—MAIN DRAINAGE.—The Manchester Corporation invite tenders for construction of main drainage work, No. 4. See advertisement in this issue for further particulars.

JANUARY 21.—**Marton.**—ROAD.—For the formation of a new road, about 700 yds. long. Plan, specification, and form of tender with Mr. W. T. Hall, College Hill, Shrewsbury. Deposit of 1*l.* 1s.

✱ JANUARY 25.—**St. Austell Rural.**—TRENCHES, GRADED PIPE-LINES, ETC.—Tenders are invited for excavating trenches, laying graded pipe-lines, constructing manholes, etc. See advertisement in this issue for further particulars.

JANUARY 25.—**Stockton.**—SEWAGE.—For the sewerage for the Durham-road area, in the parish of Norton. Plans and specifications with Mr. John Rodham, Surveyor to the Council, Finkle-street, Stockton-on-Tees.

✱ JANUARY 27.—**Harpenden.**—SEWERAGE.—The Harpenden U.D.C. invite tenders for the construction of a system of sewerage and sewage-disposal works. See advertisement in this issue for further particulars.

JANUARY 27.—**Romford.**—SEWAGE.—For the construction of sewerage works at Chequers-lane, Dagenham, Essex. Specification and drawings with Mr. W. J. Grant, Surveyor to the Council, Victoria-chambers, Romford. Quantities on deposit of 2*l.* 2s.

FEBRUARY 5.—**Hatfield.**—SLAG, ETC.—For the supply of broken granite and slag. Forms of tender and conditions of contract from Mr. Urban A. Smith, M.Inst.C.E., County Surveyor, County Surveyor's Office, Hatfield, Herts.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*TEMPORARY ARCHITECT'S ASSISTANTS (2)	Northamptonshire C.C.	3*l.* 3s. per week	Feb. 1

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*DEALS, BATTENS, BOARDS, TIMBER, ETC.—Great Hall, Winchester House, E.C.	Churchill & Sim	Jan. 15
*BUILDER'S AND CONTRACTOR'S PLANT, FULHAM, S.W.—On the Premises	Joseph Hibbard & Sons	Jan. 21
*BUILDER'S STOCK AND PLANT, SOUTH TOTTENHAM, N.—On the Premises	Joseph Hibbard & Sons	Jan. 28
*ANTIQUE FIXTURES AND FITTINGS, 10, TRINITY-SQUARE, E.C.—On the Premises	Fuller, Horsey, Sons, & Cassell	Jan. 31
*SITE FOR SHOPS, ETC., HIGH HOLBORN—At the Mart	Thurgood & Martin	Feb. 4

OBITUARY.

Mr. J. Morris.

The death last week at Spaxton, Co. Somerset, is announced of Mr. Joseph Morris, formerly County Surveyor for Berks, who for many years practised in Reading with Mr. Francis Edward Morris, A.R.I.B.A., under the style or firm of Messrs. Joseph Morris & Son, architects and surveyors. Mr. J. Morris and Mr. F. E. Morris dissolved partnership in December, 1905. Messrs. Joseph Morris & Son were the architects of "The Ark of the Covenant" Church at Stamford-hill, N. (1896); the vestry, Sunninghill Church, Berks; Wesleyan Church, Gorbrooke-road, Caversham (1898); the Queen's Hall, Ascot, alterations and extensions, for the County Council (1903); the bridge, mainly of steel, across the Thames at Whitchurch and Pangbourne (1902); for the Standing Joint Committee of the County of Berks and Maidenhead—Wokingham Police-station and Petty Sessional Courts, and Thatcham Police-stations (1904); and in Reading—premises, after a freely treated Renaissance manner, in Oxford-street and Cheapside, for Messrs. William MacIlroy, Ltd.; Broadway—buildings and other premises, Station-road (1902-4): and the County Police buildings, with court-room, constables' quarters, etc., in Rectory-road (1905).

The Late Mr. F. J. Smith.

In reference to the obituary notice of the late Mr. F. J. Smith, which appeared in our last issue, p. 28, we may add that the following buildings were erected from his designs:—The Town Hall, now the Caxton Hall, Westminster; public baths at Lavington-street, Southwark; swimming-baths at North Camp, Aldershot; additions to Keddington Workhouse, Suffolk, for the Risbridge Union Board of Guardians; rebuilding of the Sackville Hotel, Bexhill-on-Sea; the Kursaal, Bexhill-on-Sea; and restoration of Carleton Church, Cambs, and Great Bradley Church, Suffolk.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£	s.	d.
Best Stocks	1	15	0
Picked Stocks for Facings	2	10	0

Per 1000, Delivered at Railway Depôt.

	£	s.	d.		£	s.	d.
Flettons	1	13	6	Best Blue Pressed Staffordshire	3	15	0
Best Fareham Red	3	12	0	Do. Bullnose	4	0	0
Best Red Pressed Ruabon Facing	5	0	0	Best Stourbridge Fire Bricks	4	0	0

GLAZED BRICKS—

Best White, Ivory, and Salt Glzd. Str'tch'rs	12	7	6	Double Headers	14	17	6
				One Side and two Ends	18	17	6
Headers	11	17	6	Two Sides and one End	19	17	6
Quoins, Bullnose, and 4½ in. Flats	15	17	6	Splays & Squints	17	7	6
D'ble Stretchers	17	17	6				

Second Quality £1 10s. per 1000 less than best.

	s.	d.	
Thames and Pit Sand	6	9	per yard, delivered.
Thames Ballast	5	6	" "
Best Portland Cement	36	0	per ton, "
Best Ground Blue Lias Lime	19	0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	13s. 6d.	per yard delivered.
Stourbridge Fireclay in sacks	27s. 0d.	per ton at rly dpt.

STONE.

Per Ft. Cube.

	s.	d.
BATH STONE—delivered on road waggons, Paddington Depôt	1	7½
Do. do. delivered on road waggons, Nine Elms Depôt	1	9
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	3
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	4½

Per Ft. Cube, delivered at Railway Depôt.

	s.	d.		s.	d.
Ancaster in blocks	1	10	Closeburn Red Freestone	2	0
Beer in blocks	1	6			
Greenshill in blocks	1	10	Red Mansfield Freestone	2	4
Darley Dale in blocks	2	4	Talacre & Gwespyr Stone	2	4
Red Corsehill in blocks	2	3			

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s.	d.
Scappled random blocks	2	10

Per Ft. Super., Delivered at Railway Depôt.

	s.	d.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3
6 in. rubbed two sides ditto, ditto	2	6
3 in. sawn two sides slabs (random sizes)	0	11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7
1½ in. to 2 in. ditto, ditto	0	6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.	s.	d.
Scappled random blocks	3	0

STONE (*Continued*).

HARD YORK (*Continued*)—

Per Ft. Super., Delivered at Railway Depôt.	s.	d.
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
2 in. self-faced random flags	0	5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20×10 best blue Bangor	13	2	6	20×10 best Eur'ka unfading green	15	17	6
20×12 ditto	13	17	6	20×12 ditto	18	7	6
20×10 1st quality ditto	13	0	0	18×10 ditto	13	5	0
20×12 ditto	13	15	0	16×8 ditto	10	5	0
16×8 ditto	7	5	0	20×10 permanent green	11	12	6
22×10 best blue Portmadoc	12	12	6	18×10 ditto	9	12	6
16×8 ditto	6	12	6	16×8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Best "Hartshill" brand, plain sand-faced (per 1000)	45	0
Hip and Valley (per doz.)	3	7	Do. pressed (per 1000)	42	6
Best Broseley (per 1000)	50	0	Do. Ornamental (per 1000)	47	6
Do. Ornamental (per 1000)	52	6	Hip (per doz.)	4	0
Hip and Valley (per doz.)	4	0	Valley (per doz.)	3	6
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57	6	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. Ornamental (per 1000)	60	0	Hand-made sand-faced (per 1000)	45	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz.)	3	0	Valley (per doz.)	3	6

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0	...	15	10	0
Deals: best 3 by 9	13	10	0	...	14	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	...	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0		less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best.			
Battens: seconds	0	10	0	"		"	
2 in. by in. and 2 in. by 6 in.	9	10	0	...	10	10	0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0	...	10	0	0
Foreign Sawn Boards—							
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
¼ in.	1	0	0	"			
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5	0	0	...	5	10	0
Seconds	4	10	0	...	5	0	0
Small timber (8 in. to 10 in.)	3	17	6	...	4	0	0
Small timber (6 in. to 8 in.)	3	5	0	...	3	10	0
Swedish balks	2	12	6	...	3	0	0
Pitch-pine timber (30 ft. average)	5	5	0	...	6	0	0

JOINERS' WOOD.	At per standard. £	s.	d.		£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	10	0	...	25	10	0
3 in. by 9 in.	22	10	0	...	23	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	...	18	0	0
Second yellow deals, 3in. by 11in.	19	0	0	...	20	0	0
" " 3 in. by 9 in.	18	0	0	...	19	10	0
Battens, 2½ in. and 3in. by 7 in.	14	0	0	...	15	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	...	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	...	22	10	0
Do. 3 in. by 9 in.	18	10	0	...	19	10	0
Battens	14	0	0	...	15	0	0
Second yellow deals, 3 in. by 11 in	16	10	0	...	17	10	0
Do. 3 in. by 9 in.	15	0	0	...	16	0	0
Battens	11	10	0	...	12	10	0
Third yellow deals, 3in. by 11 in.	13	10	0	...	14	10	0
Do. 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	15	0	0	...	16	0	0
" " 3 in. by 9 in.	14	0	0	...	14	10	0
Battens	11	10	0	...	12	10	0
Second white deals, 3in. by 11in.	14	0	0	...	15	0	0
" " 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
Pitch-pine: deals	19	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	48	0	0	upwards.			
Oddments	32	0	0	"			
Seconds, regular sizes	33	0	0	"			
Oddments	28	0	0	"			
Kauri Pine—Planks per ft. cube	0	4	6	...	0	6	0
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	3	0	...	0	3	9
Small " "	0	2	6	...	0	2	6
Wainscot Oak Logs, per ft. cube	0	6	6	...	0	8	0
Dry Wainscot Oak, per ft. super. as inch	0	0	10	...	0	1	0
¼ in. do. do.	0	0	8½	...		—	
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	10	...	0	1	1
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	18	0	0	...	22	0	0
American Whitewood planks, per ft. cube	0	5	0	...	0	6	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—

Prepared Flooring, etc.—	Per square. £	s.	d.		£	s.	d.
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	0
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. " "	0	14	0	...	0	18	6
¾ in. by 7 in. white " "	0	10	0	...	0	11	0
1 in. by 7 in. " "	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	8	10	0	...	9	10	0
Compound Girders, ordinary sections	10	0	0	...	11	0	0
Steel Compound Stanchions	11	10	0	...	12	10	0
Angles, Tees, and Channels, ordinary sections	10	0	0	...	11	0	0
Flitch Plates	10	0	0	...	11	0	0
Cast Iron Columns & Stanchions, including ordinary patterns	8	0	0	...	8	10	0

METALS.

IRON—	Per ton, in London. £	s.	d.		£	s.	d.
Common Bars	9	0	0	...	9	10	0
Staffordshire Crown Bars, good merchant quality	9	5	0	...	9	15	0
Staffordshire "Marked Bars"	11	0	0	...		—	
Mild Steel Bars	9	5	0	...	9	15	0
Hoop Iron, basis price	10	0	0	...		—	
" " Galvanised	17	10	0	...		—	
(*And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	10	5	0	...		—	
" " 24 g.	11	5	0	...		—	
" " 26 g.	12	15	0	...		—	
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	10	0	...		—	
Ordinary sizes to 22 g. and 24 g.	16	0	0	...		—	
" " 26 g.	17	0	0	...		—	
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	18	10	0	...		—	
" " 22 g. and 24 g.	19	0	0	...		—	
" " 26 g.	20	10	0	...		—	
Galvanised Corrugated Sheets—							
Ordinary sizes, 6ft. to 8ft. 20 g.	15	0	0	...		—	
" " 22 g. and 24 g.	15	5	0	...		—	
" " 26 g.	16	15	0	...		—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	10	0	...		—	
Best Soft Steel Sheets, 2 g. & 24 g.	13	10	0	...		—	
" " " 26 g.	15	10	0	...		—	
Cut Nails, 3 in. to 6 in.	11	0	0	...	11	10	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

Delivered in London.

	£	s.	d.				
LEAD—Sheet, English, 4lb. and up	22	0	0	...		—	
Pipe in coils	22	10	0	...		—	
Soil pipe	25	10	0	...		—	
Compo pipe	25	10	0	...		—	
ZINC—Sheet—	In casks of 10 cwt.						
Vielle Montagne	33	15	0	...		—	
Silesian	33	10	0	...		—	
Zinc, in bundles, 1s. per cwt. extra.							
COPPER—							
Strong Sheet per lb.	0	1	1	...		—	
Thin " "	0	1	2	...		—	
Copper nails "	0	1	0	...		—	
Copper wire "	0	1	0	...		—	
BRASS—							
Strong Sheet "	0	1	0	...		—	
Thin "	0	1	1	...		—	
TIN—English Ingots "	0	2	3	...		—	
SOLDER—Plumbers' "	0	0	11	...		—	
Tinmen's "	0	1	2½	...		—	
Blowpipe "	0	1	4½	...		—	

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	4d.
" fourths	2d.	32 oz. thirds	5½d.
21 oz. thirds	3½d.	" fourths	4½d.
" fourths	3d.	Fluted Sheet, 15 oz.	3d.
26 oz. thirds	4½d.	" 21 oz.	4d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

¼ Rolled plate	2½d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	3½d.
⅛ Rough rolled and rough cast plate	2½d.		
¼ Rough rolled and rough cast plate	3d.	Ditto, tinted	5d.

* Not less than two crates.

OILS, &c.		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	3
" " " in barrels	"	0	2	4
" " " in drums	"	0	2	5
Boiled " in barrels	"	0	2	5
" " " in drums	"	0	2	8
Turpentine in barrels	"	0	2	8
" in drums	"	0	2	10
Genuine Ground English White Lead, (In not less than 5 cwt. lots)	per ton	30	5	0
Red Lead, Dry	"	26	12	6
Best Linseed Oil Putty	per cwt.	0	10	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	9
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	6
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0

VARNISHES, &c. (*Continued*).	Per gallon. £ s. d.
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 6

TO CORRESPONDENTS.

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All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the author.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 6 p.m. on Wednesday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ABERAVON.—For rebuilding the Temple of Fashion. Mr. F. B. Smith, architect and surveyor, Port Talbot:—

H. Billings & Sons	£1,461	10	0
Walters & Johns	1,384	18	11
B. M. Davies & Co.	1,296	3	10
M. Cox	1,249	0	0
D. Jenkins, Ltd.	1,200	0	0
T. Hassell & Son	1,192	0	0
Exors. of S. T. Rees	1,173	9	0
Anderson & Vaughan	1,161	5	0
W. H. Evans	1,160	0	0
J. Vaughan, 17, Grange-street, Port Talbot*	1,091	0	0

ALBURY.—For building six cottages, for Hadham Rural District Council. Mr. E. T. Watts, Surveyor, London-road, Bishop's Stortford:—

A. Long	£1,170	Day & Sons	£1,055
C. Barker	1,140	D. Robinson	1,063
C. Martin	1,119	Glasscock & Sons, Bishop's Stortford*	1,050
C. Chapman	1,090		

ALTRINCHAM.—For erection of a shelter and conveniences at the recreation ground, Broadheath. Mr. H. E. Brown, Borough Surveyor, Altrincham. Quantities by Mr. J. Cocker, Station Buildings, Altrincham:—

J. A. Massie	£389	15	3
M. McDermott	376	17	0
J. & J. Parish	375	2	6
J. Hamilton & Son	364	0	0
J. Pennington	£359	5	0
M. Stone & Sons	357	0	0
R. & J. Potts, Altrincham*	348	12	0

CASTLEFORD.—For dwelling-house, sheds, etc., in Pretoria-street, for Mr. E. Roberts. Mr. F. Scatchard, architect and surveyor, Castleford:—

Excavators, Bricklayers, and Masons: Thomson & Wynne*	£171
Carpenters and Joiners: J. Holland & Son*	57
Plumber and Glazier: J. W. Keech*	17
Slater: S. Evison*	15
Plasterer: J. Beighton*	12

[All of Castleford.]

[Painting not included. Sheds, separate contract.]

HARROGATE.—For erection of new entrance lodge and conveniences, Wetherby-lane Cemetery. Mr. C. E. Rivers, A.M.Inst.C.E., Borough Engineer and Surveyor:—

	Conveniences.	Entrance Lodge.
Masons:—		
Dawson & Son	£110 0 0	£322 0 0
T. Godfrey*	95 2 2	295 14 7
A. Hymas	97 0 0	297 10 0
Kershaw & Hill	100 0 0	323 0 0
C. A. Nettleton	98 9 0	311 6 7
Plasterers:—		
J. Barker	0 19 8	30 10 4
A. Calverly*	0 14 0	27 16 8
Plumbers:—		
Braithwaite & Co.	46 8 4	97 13 3
H. Hannam	45 19 8	102 14 4
J. Hewson*	42 12 10½	88 15 6
H. Procter	52 11 2	115 17 2
Richmond & Co.	48 10 0	103 0 0
Joiners:—		
J. Allen & Son	26 15 0	150 14 8
T. Archer	25 10 0	185 19 0
A. E. Baines	25 0 0	160 0 0
G. H. Carrick	24 0 0	180 0 0
F. Harvey	15 0 0	200 0 0
G. W. Ledger	21 2 2	178 9 0
H. Rudd	26 10 0	2 5 0 0
J. W. Taylor*	22 0 0	173 0 0
E. Thomas	26 7 6	209 3 9
W. Watson	22 0 0	173 0 0
Slaters:—		
J. Leety	10 5 0	87 10 6
T. Rayner	11 2 6	88 5 0
Wright Bros.*	10 1 0	86 18 6
Painters:—		
Broadbank & Co.	2 15 0	26 10 0
Decorative Supply Co.	3 0 0	25 5 0
H. Eshelby	2 15 8	25 0 0
Jessop & Casgrove	2 8 0	22 10 0
J. Morley*	2 0 0	21 0 0
Noddings & Son	2 10 0	23 14 6

[All of Harrogate.]

HOLYWELL.—For erection of a new infirmary. Messrs. J. H. Davies & Sons, architects, Chester:—

A. Jones	£8,378	R. Carlyle	£7,097
A. B. Lloyd	7,610	R. Jones & Son	6,980
G. & H. Marshall	7,484	Clayton Bros.	6,960
Morrison & Sons	7,367	Sibeon Bros., Holywell†	6,777
G. & W. Edwards	7,300	Dryland & Preston	6,735
Brown & Backhouse	7,177		

LONDON.—For the erection of a garage on the site of Nos. 20 to 26, Nunhead-lane, Peckham, S.E., for the National Steam Car Company, Ltd. Mr. George A. Lansdown, F.R.I.B.A., architect, 9, Regent-street, S.W.:—

Snewin Bros. & Co.	£12 6 5	H. & E. Lea	£11,520
J. Carmichael	12,574	G. Parker & Sons	11,497
Kirk & Kirk	12,43[illegible]	W. Downs	11,450
J. Marsland & Sons	12,225	W. Jones & Sons	11,100
J. Mowlem & Co., Ltd.	11,879	Patman & Fotheringham, Ltd.*	11,073

SOUTH KIRBY.—For erection of eighteen dwelling-houses in Mill-lane. Messrs. Garside & Pennington, architects, Pontefract. Quantities by architects:—

Gray & Sons	£6,187	16	2
S. Johnson & Son	5,819	10	0
W. Hanley	5,433	9	0
W. Thornton & Son	5,400	0	0
Swift Bros.	5,075	0	0
J. H. Wood & Son	£5,062	0	0
Mason & Son	5,041	0	0
Lister, Brook, & Co., Brighouse*	4,757	12	10

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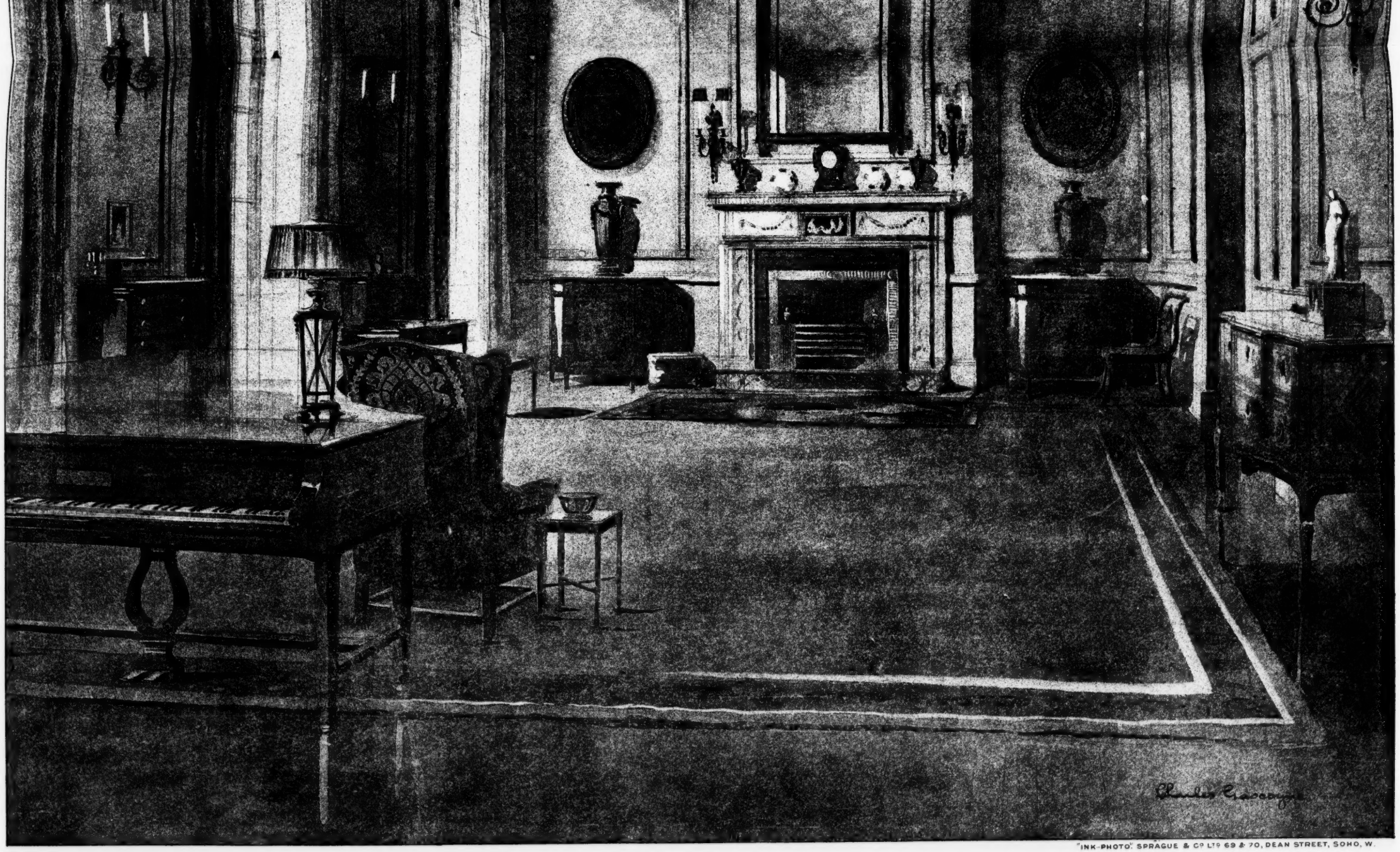

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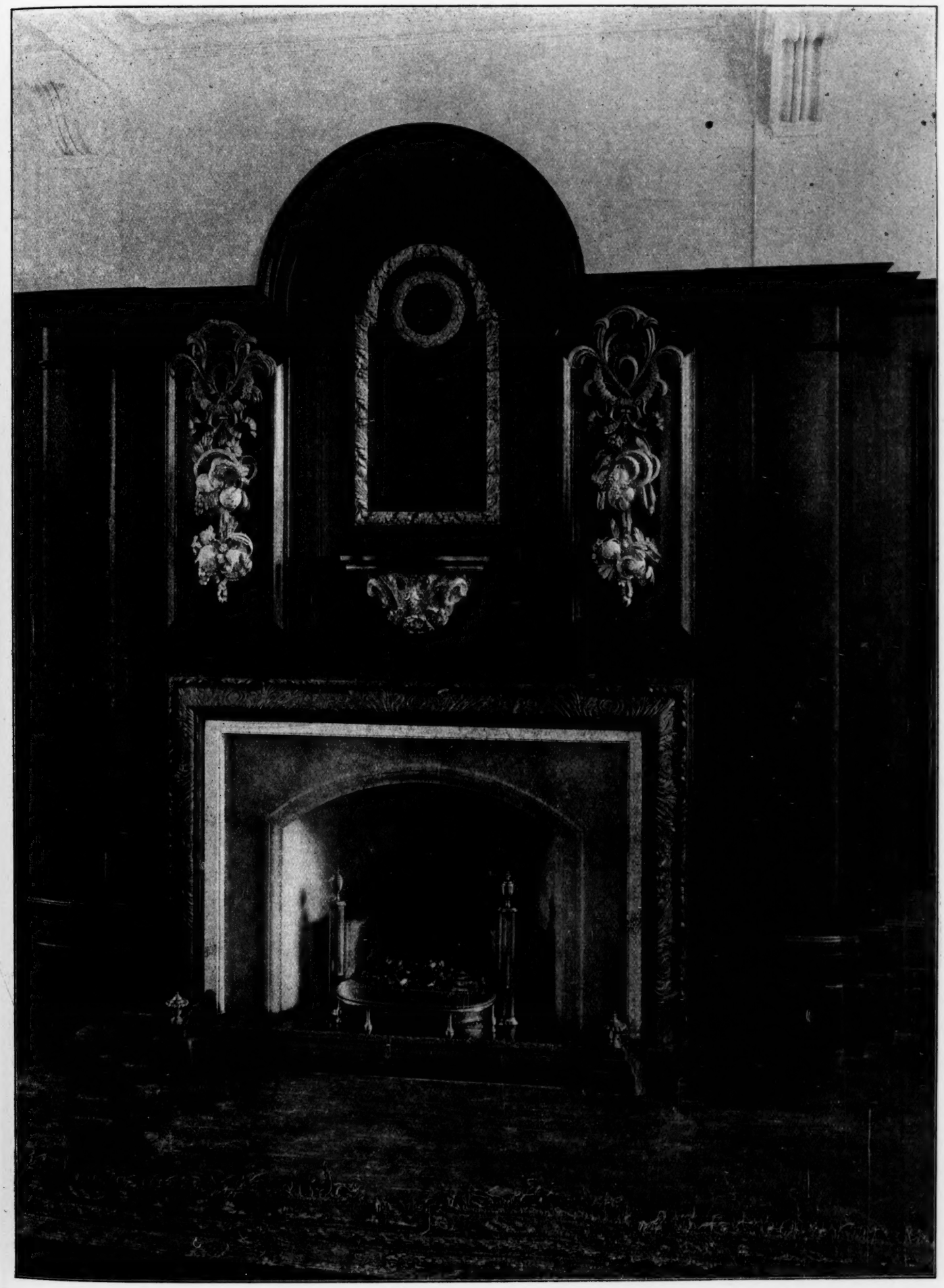

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